Dale Metz, Smith 1928-2011

The American Fern Society lost a longtime member this year when Dale Smith passed away on 25 January 2011. Dr. Dale Metz Smith was born on 23 December 1928 in Portland, Indiana, where he grew up and attended high school. He attended college at Indiana University and received his B.S. degree in 1950. That year, he also married the former Ruth Geraldine Wyne of Deputy, Indiana. Dale then earned his M.S. degree from Purdue University in 1952 and his doctorate from Indiana University in 1957. His dissertation was on a group of sunflowers, but he also had a long-standing interest in ferns and joined the AFS in 1958. Dale taught botany at several universities before settling into his final tenure track at the University of California-Santa Barbara. There he rose to the rank of professor and also served as chairman of the Biology Department. He was a well-known teacher of biology. His most-cited research centered on the flavonoid chemistry and systematics of various plant groups, including what was then known as the *Pityrogramma triangularis* complex (the silverback ferns, now segregated into the genus *Pentagramma*) and the Appalachian *Asplenium* complex. After a period as professor emeritus, Dale and his wife returned to the small town of Deputy, in southeastern Indiana. Although retired, he remained active in the Indiana Academy of Science and in correspondence with other botanists.

submitted by George Yatskievych

*Pentagramma triangularis*
Request — *Thelypteris palustris forma pufferae*

In 1902, A. A. Eaton described a crested form of the Marsh Fern *Thelypteris palustris* as forma *pufferae*, after its finder Mrs. J. J. Puffer. The European form of the Marsh Fern has never been found in variety, and so this find is of particular interest. During a recent tour of the SE States by members of the British Pteridological Society and the Hardy Fern Foundation, this fern was discovered in cultivation at a nursery. I am considering writing an article on this interesting taxon for the Pteridologist (one of the British Pteridological Society’s journals). Therefore I would love to hear from anyone who grows, or has ever grown this form, or if you know anyone who has. I would also be interested to know if anyone has found another crested Marsh Fern in the wild. Please respond to grahamackers@compuserve.com. Thank you.

Coastal Maine Botanical Gardens

in Boothbay, Maine has launched FloraFind, its new searchable database, with images and interactive maps. You can access FloraFind from the Coastal Maine Botanical Gardens home page: www.mainegardens.org/ or directly at florafind.mainegardens.org.

submitted by Mark Glicksman

Renew your membership today!

We would like to thank all American Fern Society members for their contributions to the Fiddlehead Forum in 2011 and send out a request for members to submit articles for inclusion in the Fiddlehead Forum in 2012. We need your submissions!

No article is too large or too small!

Happy New Year!
Help Wanted!

The year 2012 will mark the tenth year of George Yatskievych’s service as Membership Secretary of the American Fern Society, and George has asked the AFS Council to locate a successor for the position. The Membership Secretary is an appointed position on the AFS Council and a critical one within the Society. We are looking for a highly responsible person with good attention to financial details and who is good at communicating with the membership. The new Membership Secretary must be able to use a computer and have internet and e-mail access. The main duties involved are:

1. To maintain the database of active and past memberships and subscriptions. There are several membership categories and nearly 900 active members around the world. AFS also allows its members to join or renew memberships in the British Pteridological Society (so they can pay for this in U.S. Dollars) and some BPS members pay their AFS dues through that Society (thus there is an annual financial reconciliation between the two groups).

2. To prepare and mail the annual renewal notice and election ballot to the membership. This also involves sending updates to be posted on the AFS web site.

3. To receive and process new and renewing memberships and subscriptions and to maintain a bank account for the funds received. Periodically, funds from this account are transferred to the Treasurer. New members receive a welcome packet with a letter, a list of fern books, and a copy of the AFS Constitution, as well as any issues of the journal or newsletter that have appeared for the year. This also means that the Membership Secretary receives and stores a supply of back-issues of recent volumes of both publications.

4. Periodically to send sets of data for the address labels that are used in mailing the journal and newsletter issues. Occasionally, other members of the AFS Council may also request membership rosters and, once every five years or so, the roster is printed in the Fiddlehead Forum.

5. To prepare an annual financial report to be incorporated into the Treasurer’s annual report. Generally, the Membership Secretary also attends the AFS annual meeting and reports on the past year’s membership activities.

6. To address questions and requests from the membership and the public (mostly relating to joining the Society).

As may be imagined, the Membership Secretary is busiest during the winter months, when the mailbox is flooded with renewals. The Society’s membership records currently are in a Microsoft Access Database, but the new person will be encouraged to adopt a new online platform developed by our colleagues at the Botanical Society of America, who also offer AFS the opportunity to receive payments by credit card via a secure web site.

The American Fern Society is a not-for-profit corporation and uses only volunteers to fill its positions. The Society does reimburse the Membership Secretary for supplies, mailing costs, and other expenses relating to the job.

The perfect candidate for this position does not have to be a professional botanist, but needs to be able to perform the duties efficiently. Without the work of the Membership Secretary, the membership does not receive any newsletters, journals, or other mailings. A perk is that over time, the Membership Secretary exchanges communications with many of the members and thus gets to know the membership better than most of the other Council members. Occasionally, publishers also send journals and books for addition to the AFS list of fern publications.

If you are interested in taking on this important service to your Society or would like more information on the position, please contact George Yatskievych at 314-577-9522 (weekdays) or at George.Yatskievych@mobot.org
Re: Ward’s Rewards


I came across this article recently and hope other members will also find it interesting. J. E. N. H

Inasmuch as you’re reading this the chances are better than even money that you know what a Wardian Case is, and you probably know that it’s named after a fellow named Ward, who first created it. Beyond these simple facts the odds are considerably longer that you know much more about him — and if your curiosity remains dormant, stop right here. On the other hand —

He was born a bit short of two hundred years ago, in 1791, the son of a medical man. The term medical man in those days probably covered the services of practitioner, surgeon, apothecary and dispenser of bedside manners; whatever, the medical man’s name was Stephen Smith Ward and his son was baptised Nathaniel Bagshaw Ward, which is not exactly the sort of distinction that even a doctor’s son would cherish. However, Nathaniel didn’t have much to say about it; he was just stuck with it.

Dr. Stephen (W) had a practice in Well Close Square, London, England, an area close to the River Thames and the London Docks in Whitechapel, a district not exactly conducive to the study of Nature. Nevertheless, young Nathaniel began collecting plants and insects at an early age, and at the somewhat tender age of thirteen, found himself aboard ship in route to Jamaica, West Indies. To say that he was impressed by the tropical vegetation of the interior is probably a bit of an understatement. There’s no doubt that the experience was a change of pace that would rock the heart and mind of any city-born youngster. It did exactly that for young Nathaniel, for from that day forth he became an ardent botanist.

The matter of Nathaniel’s education however, first had to be dealt with and this took place at the London Hospital on Whitechapel Road, little more than a half mile from home. Here young Nathaniel served apprenticeship, and attended the botanical ‘herborings’ of one Thomas Wheeler, demonstrator of the Society of Apothecaries. In this way he managed to indulge his botanical interests with his assumed profession, for he gradually took over his father’s practice in Well Close Square.

Visiting hours for Nathaniel meant visits by him, — to the several gardens in and around the city, in particular to those of the famous Loddiges at Hackney, about three or four miles north; Chelsea Gardens, site of the annual Flower Show, was five miles to the west, on the banks of the Thames, while the Royal Botanical Gardens at Kew was a good fifteen miles, outside the city limits, and a day’s excursion on the steamboats that plied the river.

Visiting hours for his patients, on the other hand, were arranged for afternoons so that mornings were left free for his plant collecting in his explorations around London. In later years his leisure hours were spent with his family in Cobham, a village along the ‘Pilgrim’s Way’ that led to Canterbury in Kent. This was a good twenty plus miles as the crow flies and a couple of hours journey at least by stage coach. Here he could be closer to plant life.

In London, however, he did his best to cultivate plants amid the increasingly smoky surroundings of a city whose factories were belching forth the smoke of a soft bituminous coal that contributed little towards plant growth and much to contamination of the atmosphere and the production of fog. But he persevered.

While no doubt much of his interest in plants must have been directed towards the curative properties of herbs his enthusiasm went so far as to encourage window gardening among the working class people, many of whom must have been his patients. He was elected a fellow of the Linnean Society when he was twenty six and his never flagging interest in nature study was eventually, twelve years later, to bring about the event that brought him fame.

This year is the sesquicentennial of this unique case of triple serendipity. His entomological pursuits had caused him to bury the chrysalis of a Sphinx moth in some soil or, as he calls it, “mould,” in a wide-mouthed bottle. The time of emergence of the fourth and final stage of the Sphinx moth in late summer is fairly well known and about a week before the Sphinx moth was due to make its appearance, Nathaniel noticed the sprouting of a seedling and a sporeling in the soil at the bottom of the jar.

We call this a case of triple serendipity because three unintentional factors combined, brought about some heavy thinking on Nathaniel’s part, and resulted in further experiments and conclusions far removed from his original purpose.
(a) the soil was there solely as the medium for burying the chrysalis;
(b) if the Sphinx moth had emerged a week earlier as another species might have done, the sproutings might never have shown up before the soil was disturbed and (c) the fertile seed and spores happened to be in the few ounces of soil which he had used.

But why don’t we let Nathaniel tell about it in his own words?

“The science of Botany, in consequence of the perusal of the works of the immortal Linnaeus, had been my recreation from my youth up; and the earliest object of my ambition was to possess an old wall covered with ferns and mosses. To obtain this end, I built up some rock-work in the yard at the back of my house, and placed a perforated pipe at the top, from which water trickled on the plants beneath; these consisted of Polypodium vulgare, Lomaria spicant, Lastraea dilatata, L. Filix-mas, Athyrium Filix-foemina, Asplenium Trichomanes, and a few other ferns, and several mosses procured from the woods in the neighbourhood of London, together with primroses, wood sorrel & c. & c. Being, however, surrounded by numerous manufactories and enveloped in their smoke, my plants soon began to decline, and ultimately perished, all my endeavours to keep them alive proving fruitless. When the attempt had been given up in despair, I was led to reflect a little more deeply upon the subject, in consequence of a simple incident which occurred in the summer of 1829. I had buried the chrysalis of a Sphinx in some moist mould contained in a wide-mouthed glass bottle, covered with a lid. In watching the bottle from day to day, I observed that the moisture which during the heat of the day arose from the mould, became condensed on the internal surface of the glass, and returned whence it came; thus keeping the mould always in the same degree of humidity. About a week prior to the final change of the insect, a seedling fern and a grass made their appearance on the surface of the mould.

“I could not but be struck with the circumstance of one of that very tribe of plants, which I had for years fruitlessly attempted to cultivate, coming up sponte sua in such a situation; and asked myself seriously what were the conditions necessary for its growth? To this the answer was, — 1stly, an atmosphere free from soot; (this I well knew from previous experience): 2ndly, light: 3rdly, heat: 4thly moisture: and lastly, change of air. It was quite evident that the plants could obtain light and heat as well in the bottle as out of it; and that the lid which retained the moisture likewise excluded the soot. The only remaining condition to be fulfilled was change of air; and how was this to be effected? When I published my account in the ‘Companion to the Botanical Magazine, I overlooked the law respecting the diffusion of gaseous bodies, described in the preceding chapter, and stated that this change was produced by the variations of temperature causing alternate expansions and contractions in the air surrounding the plants, and which of course produced a certain but very limited effect.

“Thus, then, all the conditions necessary for the growth of my little plant were apparently fulfilled, and it remained only to put it to the test of experiment. I placed the bottle outside the window of my study, — a room facing the north, — and to my great delight the plants continued to grow well. They turned out to be Lastraea* Filix-mas and Poa annua. They required no attention, the same circulation of the water continuing; and here they remained for nearly four years, the Poa once flowering, and the fern producing three or four fronds annually. At the end of this time they accidentally perished, during my absence from home, a consequence of the rusting of the lid, and the admission of rain water.”

Here endeth the extract from Ward’s original treatise “On the Growth of Plants in Closely-glazed Cases.” We’ll have more to say on the subject in a future issue.

*(Dryopteris)*

Continued in Volume 7, Number 2, 1980

Nathaniel Ward’s original manuscript, an excerpt of which was presented in an earlier issue, did not actually come to light until it was published four years later, in 1832, under the title “On the Imitation of the Natural Conditions of Plants in Closely-glazed Cases.” In the interim, an account of the many fern cases that filled Ward’s house appeared in March 1834 written by J. C. Louden, owner of the then popular Garden Magazine. The following issue had an article by Ward himself describing his glazed cases and some of the many experiments that had resulted from his original discovery.

It was these experiments that Nathaniel had conducted that had occupied much of his leisure during the four years between the original serendipity inci-
dent and the publication of his now famous mono-

graph. While there has always been considerable criti-
cism as to the extent of Ward’s actual contribution to
the phenomenon he described, the fact remains that he
was the only one to see its significance, to make con-
trolled experiments and to report them in an orderly

fashion.

One of the more amusing incidents resulted from
his success with *Trichomanes radicans*; his friends at
Loddiges, the local nursery garden, had never been
able to grow it successfully, so that it was something
of a triumph when Baron Fischer, superintendent
of the Botanical Gardens of the Emperor of Russia, rec-
ognised it when he saw it flourishing in one of Nathaniel’s
‘glazed cases.’ He took off his hat, and making a
low bow, said, “You have been my master all my life.”

More important however was a successful test of a
shipment of ferns and grasses that were sent to Sydney,
Australia in 1833. The two cases that were sent, were
refilled and shipped back to England. Without having
been watered during the entire trip, the plants arrived
in a healthy condition despite having been exposed to
snow and a temperature of 20°F off Cape Horn and to
one of 120°F at the equator.

This was welcome news to the professional plant
world and it was not long before the method was ad-
opted by the Royal Botanical Garden at Kew. Up to
this time plants had been shipped, packed in moss, or
allowed to grow in soil, unwatered and untended, with
the result that the casualties were enormous.

By 1834 Hooker had published an account of the
discovery in the “Companion to the Botanical Maga-
zeine” as an improved method of transporting plants
and Ward himself issued a pamphlet on the “Growth
of Plants without open exposure to the Air.”

From the early beginnings Ward’s experiments ex-
tended to a diversity of plants namely Jungermannia
and Mosses, a variety of flowering plants, shrubs,
buls, cactuses, and palms, and many ferns and fern
allies. In each case he experimented and recorded tem-
peratures, humidity, light factors and air conditions.
The data was sufficiently impressive to find accep-
tance throughout the horticultural world, and by means
of the ‘Wardian Case’ the successful distribution of
new plants in new areas was accomplished. Thus, the
Chinese or Cavendish banana was transported from
Chatsworth, the opulent gardens of the ancestral home
of the Duke of Devonshire in England, to Samoa, and
from there to Tonga and Fiji; twenty thousand tea
plants were dispatched by Robert Fortune from Shang-
hai to the Himalayas, and the chincona, source of qui-
nine, was similarly introduced to India.

Nathaniel appears to have been a modest and some-
what retiring individual, averse to publicity of any
kind. The reports of his experiments were almost re-
lictantly published and then by the persuasion of the
friends to whom he had originally imparted the results.
As a consequence it was almost seven years before the
scientific world gradually came to accept the results of
his experiments as a recognized fact.

By 1836, Nathaniel was examiner for the Society
of Apothecaries, later becoming master and treasurer
of the Society, but a priority interest was in the wel-
fare of the Chelsea Botanical Garden. He was one of
the original members of the Botanical Society of Ed-
dinburgh, acting as its local secretary for London, and
in 1839, in conjunction with his neighbours, founded
what was eventually to become, the Royal Microscop-
cal Society. He had been a member of the Linnean
Society since 1817 and in 1852 was elected fellow of
the Royal Society.

It seems to be something of a paradox that this ap-
parently introspective person should be a ‘joiner;’ the
explanation must lie in the fact that his passionate in-
terest and curiosity in the natural sciences, and plants
in particular, was the over-riding motivation that made
him persevere in his experiments without any thought
of recognition.

The day came when he was to retire from his prac-
tice in Well Close Square in the East End of London
and he removed to the more salubrious haunts of
Clapham Rise, a neighbourhood in what was then a
more suburban area of southwest London. Here he
devoted his time to gardening, and to the increase of
his neatly mounted herbarium of 25,000 specimens.
He was seventy-seven when he died at St. Leonards in
Sussex on June 4th 1868. He was buried in Norwood
Cemetery on the outskirts of southwest London.

His friends William Harvey and William Hooker
were instrumental in his name being commemorated
in the genus *Wardia*.

And so we close the Wardian Case.

*From Joan:*
Check out: www.plantexplorers.com/explorers/biog-
raphies/ward/nathaniel-bagshaw-ward.htm for more
information about Ward and his impact on internation-
al agriculture.
Fern Fun
Our Potpourri of Pteridological Plivia

*From Vol. 6, Number 3, 1979 (I thought this may be nice for a cold winter day! - Joan)*

Starting at any selected square and moving in any direction to an adjacent square, 40 of the 55 named genera can be spelled out. Letters may be used more than once but **not repeated consecutively**. Check them off as you find them.
Several years ago, I purchased an Italian Cream Cake from our local bakery. It was delicious and even better, it was in a clear plastic container. The cake did not last long in our household but I still have the container and more have been added. My liverworts like the container with ½ inch of potting soil and peat moss. I also have had the stray fern spore germinate and grow into a sporophyte. Like Ward, I was not using the container to propagate ferns, but contaminating spores, growing into fern gametophytes, are a welcome addition. It seems to lose less water than other clear plastic containers I have used and is tall, supporting the growth of the fern for quite a long time. I would assume this plastic container would also work for others fern spores/gametophytes too. My Wardian case is seen at right.