Far North Coast Bromeliad Study Group N.S.W.

Edition: May 2024

Agenda: General Discussion

Venue: PineGrove Bromeliad Nursery
114 Pine Street Wardell 2477

Phone (02) 6683 4188

Study Group meets the third Thursday of each month

Next meeting June 20th 2024 at 11 a.m.

Editorial Team:
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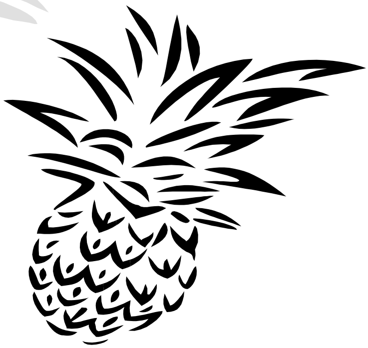


Life Members: Gary McAteer, Coral McAteer
Debbie Smith, Shirley Smith
Ross Little, Helen Clewett

Meeting 18th April 2024

The meeting was opened at approximately 11.00 am
The 8 members and one visitor were welcomed.
Four apologies were received.

General Business

On opening the meeting we introduced our visitor Peter Tristram. Peter is well known to many members of our Group as he has been one of Australia's leading importers of rare and unusual Bromeliads for many decades. His main focus is Tillandsias these days apart from creating a few desirable Neoregelia hybrids.

At our February meeting we discussed the possible need to temporarily hold our meetings away from PineGrove due to the Fire Ant issue in Wardell. So far so good regards the Fire Ants with no further outbreaks. Two members offered their homes for future meetings, our June meeting may be held at Kayelene's, to be confirmed closer to that meeting.

Ross asked for more plants to be brought along for discussion as this helps with articles for our Newsletter even if your plant doesn't make it into the next issue it will grace the pages eventually. So please bring along your identification query or your upset plant that needs some 'medical' advice, don't be embarrassed, we all have a sick bay. Observe your plants, you may find an anomaly such as a double headed inflorescence or a flower with more than the regular three petals.

Show, Tell and Ask!

Prior to the start of our meeting a few members wandered around the nursery with Peter checking plants. We were mainly looking to see how the remainder of his plants that were holidaying at PineGrove were fairing awaiting their next move to Peter's new home. In our wanderings we came across a rather large *Vriesea pastuchoffiana* with a few offsets attached. These were quickly snatched up as Peter showed his technique of removing large offsets. Get a good grip on the very base of the offset and tear it from side to side and backwards until it lets go, roots and all. Not a method for the faint hearted or the inexperienced, but it works, the offsets are doing fine, even with a bit of what seemed some brutal handling. Photo and some additional notes on page 7.

Peter imported three seedlings of *Vriesea pastuchoffiana* from Chester Skotak in Costa Rica in 1996. It is a magnificent plant when grown to maturity and flower, the laxly bipinnate inflorescence has been known to reach over 2.5 metres high. It's good to see offspring from that 1996 import still surviving and being freely shared among other keen collectors.

Peter discussed the trials and tribulations of importing plants into Australia and the losses experienced. Large quantities of imported plants have been lost in many of his shipments, most recently from New Zealand. Cause of the losses is the use of Methyl Bromide in the gassing process rather than dipping in a less harmful chemical to the plants.

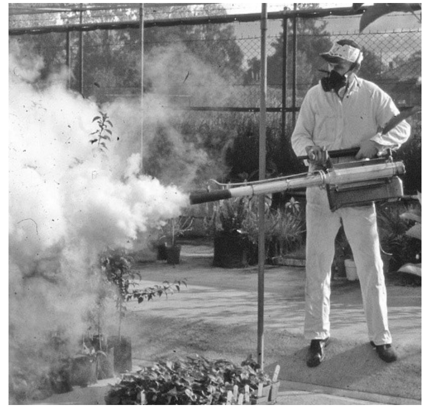
What is Methyl Bromide?

Bromomethane, commonly known as methyl bromide, is an organobromine compound with formula CH_3Br. It is a colourless, odourless, nonflammable gas, it can come from natural or industrial sources.

A gassing chamber, plants were placed inside, with the door closed Methyl Bromide is forced into the plants under pressure.

Imported plants were also undergoing a fogging process whilst in quarantine.

Photos from:
FNCBSG NSW Newsletter Dec. 2013.
Chemical Control of *Diaspididae*
by Les Higgins

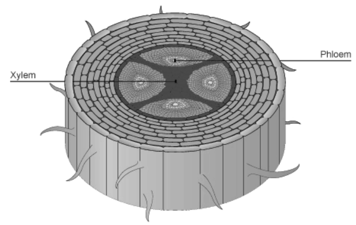


Another issue Peter spoke about that has interrupted the import of Bromeliads in recent years is *Xylella fastidiosa*.

The following taken in part from: FNCBSG NSW Newsletter February 2018.
Xylella fastidiosa compiled by Chris Larson
Or the reason we can no longer Import Bromeliads into Australia

It is an invasive bacterial plant pathogen that causes significant environmental and economic impacts. It presents as scorched leaves, browning and loss of leaves, stunted shoots, reduced fruit size, dieback and/or death of the plant. It is spread by sucking insects moving from infected plants to other species.

Xylella is a bacterium that lives in the water and nutrient conducting vessels (xylem) of plants. It is transmitted by xylem feeding insects such as leafhoppers and spittlebugs, resulting in the stoppage of water flow by blocking the vessels causing sections of the plant to die.



The disease cannot live outside of the Xylem.
No Xylella has been found in any Bromeliad genus.

Open Popular Vote

1st	Mitch Jones	*Sincoraea burle marxii*
2nd	Michelle Hartwell	*Billbergia* ‘Kolan Neon Lights’
3rd	Helen Clewett	*Neoregelia* ’Pink on Black’

Tillandsioideae

1st	Mitch Jones	*Tillandsia streptophylla* (giant form)
2nd	- - - -	
3rd	- - - -	

Decorative

1st	Mitch Jones	‘Till of a Day’

Judges Choice

1st	Helen Clewett	*Neoregelia* ‘Pink on Black’

Web Links for Checking Correct Identification and Spelling ?

Bromeliad Cultivar Register (BCR): http://registry.bsi.org/
Refer to this site for correct identification and spelling of your hybrid or cultivar.

Bromeliad Species Database (BSD): www.bsi.org/members/?bsd
Refer to this site for species identification, photos, descriptions and more.

New Bromeliad Taxon List : https://bromeliad.nl/taxonlist/
Refer to this site for latest species name changes and correct spelling.

Bromeliads in Australia (BinA) http://bromeliad.org.au/
Refer to this site for its Photo Index, Club Newsletters many with
Table of Contents Index and there’s Detective Derek Articles.

Keep these web sites set as desktop icons for quick reference access.

Where do I Find the Dates ?

www.bromeliad.org.au then click "Diary".
Check this site for regular updates of times, dates and addresses of meetings and shows in your area and around the country.

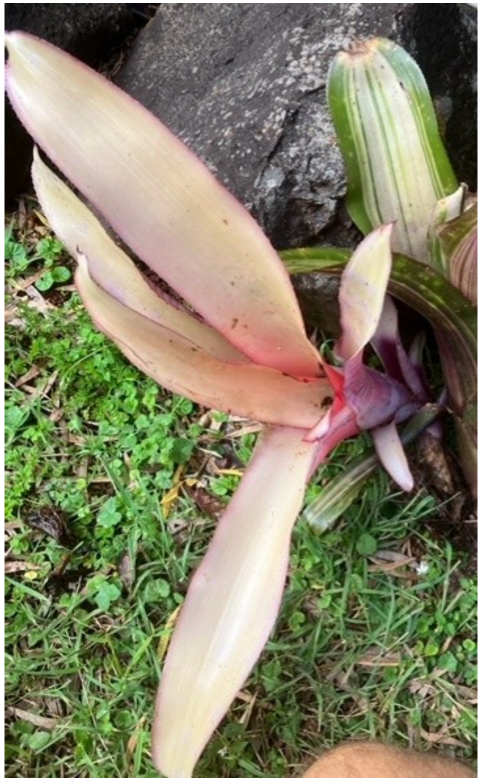
Due to limited space each month I can’t fit every query I get into our Newsletter as they come in, so they go into the ‘filler folder’ for later use. This is one such query from Ian some time ago when he discussed a couple of plants growing in his garden.

“I have checked my records, in the photo you asked for, the tall plant on the left is the plant we discussed, *Aechmea* ‘Samurai’ x *Hohenbergia leopoldo-horstii* labelled with parentage only. The plant on the right is my *Hoh. leopoldo-horstii*. The taller plant is very attractive but the flower is all Hohenbergia.”

With a little bit of research on the Bromeliad Cultivar Registry (BCR) by entering samurai into the search box we found nine x*Hohenmea* entries with the stated parentage.

Ian can look toward the x*Hohenmea* ‘Ninja’ series on the BCR for a match.

Another plant Ian discussed recently with a fairly common issue we see, was his *Billbergia* 'Alan Ladd' sporting an albino offset. It has long been known that if the albino offset is left on the parent plant it may survive and flower as it is being supported/fed by the parent plant. If it were to be separated from the parent plant it would most likely not survive on its own once it has used up its food reserves..



What are albino Bromeliads ?
Taken from the BSI Glossary:

They are plants with floral bracts and flowers that are white, although normally they would be coloured.

Albino seedlings are those that are pure white and do not survive.

What is patterned albinism ?
The following gleaned from: The Biology of the Bromeliads by David Benzing.

Patterned (partial - Ed) albinism is more commonly referred to as variegation. Not much is known about the significance of these pigmentation schemes or why some portions of some leaves are regularly achlorophyllous - not having chlorophyll and, hence, unable to engage in photosynthesis.

Albinism may crop up in the occasional Bromeliad as an anomaly or a symptom of disease, or it can be a regular feature of an entire population. Stripes may be intramarginal (the 'variegate' pattern) or marginal (the 'marginata' configuration). Occasional variegated specimens (including all white – albino) surface in many species, and similarly ornamented sports (bud variations) of hybrids are fairly common. Plants supporting large achlorophyllous zones are less vigorous than their unaffected all green counterparts since the latter employ the entire leaf to produce food.

Albino tissues contain cells that failed to synthesize chlorophyll molecules and normal chloroplasts following their derivation from a meristem.

Moral is: green plants grow quicker and stronger than variegated or marginated plants, albino plants such as Ian's can't survive without chlorophylls, they die.

Photos by Ross Little

Hohenbergia distans

Baker 1871. Originally described as *Aechmea distans* by Grisebach in 1864.

The type specimen was discovered by William Purdie near the Dolphin, Hanover Parish, Cornwall, Jamaica in January 1844.

William Purdie 1817 - 1857 was a Scottish gardener/plant collector.

He trained as a gardener at the Royal Botanic Garden Edinburgh before being sent to Jamaica in 1843 to collect seeds and plants.

He found *Hohenbergia distans* growing as an epiphyte and saxicolous at 30 - 280 metres altitude, in Jamaica.

The green leaved, tubular plant grows to around 700mm tall with the pendulous spike to around 1 metre long. Its white petals are about 12mm long.

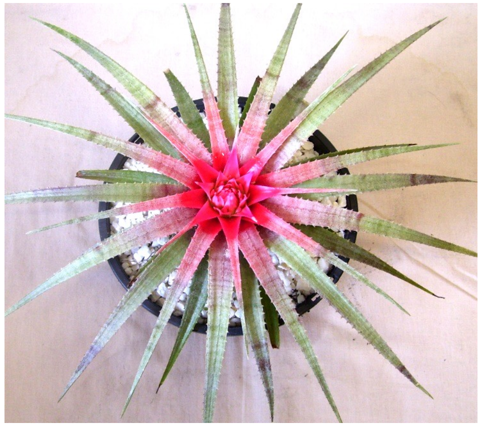
It is a relatively easy plant to grow here in our climate in the northern rivers area of NSW Australia.

Vriesea pastuchoffiana offset, photo by Mitch Jones

Vriesea pastuchoffiana

Collected by Auguste Glaziou in 1879 on Morro Queimado in the heart of the city of Rio de Janeiro, Brazil and described by Carl Mez in 1894. It is a terrestrial species that grows at altitudes from 600 to 900 metres.

It is very ornamental being one of the very collectable glyph/patterned leafed species. Due to its size of up to 2 metres plus across it's one to be admired by many collectors more so than being in ones own collection.



Sincoraea burle-marxii
1st Open Mitch Jones

Tillandsia streptophylla
1st Tillandsioideae Mitch Jones

Neoregelia 'Pink on Black'
Judges Choice Helen Clewett

Neoregelia 'Bob's Baby'
grown by Kayelene Guthrie

'Till of a Day'
1st Decorative Mitch Jones

Billbergia 'Kolan Neon Lights' grown by Michelle Hartwell was first presented to our Group in 2019 as a much smaller clump. A few generations on now it has developed into a very well established clump of bright pink, tall tubular rosettes.

Not mentioned in the registration description are the linear white stripes it gets on a leaf here and there. However it was noticed that one plant in the clump showed much stronger variegation than all the others. Michelle was encouraged (not pressured by any means) into removing this one plant in the hope she could stabilize it and develop more variegated plants from it by giving it bright light to the better variegated side.

Hopefully we will see some offsets with improved variegation in the future.

A friend of Kayelene's dropped this flower on her mail box for her.

Unsure of its identity she sent this photo through to our team asking: "What do you think this brom is?"

Our answer was: "it's a Billbergia, possibly *Bill. rosea*, but we need a photo of the plant itself to be sure but we reckon it's close".

We often see ID requests showing plant only, it's not always that easy let alone from an inflorescence only.

The following articles should help in the understanding of the difficulties of identification within this complex.

Billbergia porteana / rosea / zebrina

by Butcher 2000

This is a complex complex as far as horticultural identification is concerned. Luckily they self set seed readily and there seems to be few look-a-like hybrids!

All have yellow green petals that coil up and are members of the Helicodea group.

My search for specimens of each of these three species started in the 1980's. I seemed to be forever acquiring plants named *B. porteana,* flowering them and finding out they were either *B. rosea* or *B. zebrina*! This was very frustrating.

In 1993 Elton Leme visited Australia to attend a Bromeliad Conference in Brisbane. He brought some packets of seed with him which were auctioned off. My ears pricked up at the sound of *Billbergia porteana* but the bidding went too high for me! What puzzles me is that I have never heard what happened to all those packets of seed, but I did keep my eye on *Billbergia porteana* being grown by Olive Trevor. On a visit to Brisbane in 1997 I was able to obtain a plant which is now busily adapting itself to Adelaide conditions. However, I have seen its siblings and it links to a true *Billbergia porteana.*

Olive tells me that this plant was not a best seller, which seems strange because of the paucity of *B. porteana* in Australia. On second thoughts it is not so strange because there are lots of plants around with *B. porteana* on the label!

What has been puzzling me for ages is that I have never found a *Billbergia rosea* that has not turned out to be what was called for years as 'Venezuelana'.

Is there such a thing as an "old" *Billbergia rosea* that does not have that distinctive strong broken barring on the outside of the leaves?

The article in BSIJ 1983 #1 pages 4 and 6 which placed *B. venezuelana* as a synonym of *B. rosea* seemed more intent on herbarium specimens than what is actually growing in cultivation.

The Watch Spring Billbergias in Cultivation

By Lyman B. Smith, Smithsonian Institution, Washington, D.C.

Reprinted in part from: The Journal of the Bromeliad Society, January/February 1983, Vol. XXXIII(1)

One of the easiest groups of bromeliads to distinguish is that of the watch spring or helicoid billbergias, because their tightly recoiled petals are unique in the family. In fact some botanists have favoured separating them as a genus, Helicodea, but intermediates with true Billbergia, like *Bill. brasiliensis*, make this separation appear undesirable.

Besides their curious petals, the helicoid billbergias have a number of other characteristics in common. Their few leaves form a long, tubular rosette, their scape bracts are very large and a beautiful shade of rose, and their inflorescence is always simple and usually pendent. In fact there are so many similarities that we have little left to distinguish the species from each other except the shape of the sepals and the ovary. However, as a sort of compensation, these vary more than in most other bromeliad genera.

Billbergia porteana

1	Ovary verrucose (warty)	2
1	Ovary NOT verrucose	porteana
2	Sepals rounded tips	zebrina
2	Sepals pointed	rosea

Note the warty verrucose bits on *Billbergia zebrina* on the left and NOT verrucose warty on our plant on the right which makes it a better fit to the description for *Billbergia porteana.*

***Goudaea ospinae* var *gruberi* - Variant** by Mitch Jones

This is one of my favourite Goudaea variants I have due to the oxide colours contrasting the yellow and green foliage with wide leaves and squat height.

I originally grew it in our main garden area but didn't feel it was doing as well as it should, so I moved it into the shade house.

It's doing much better now. The chocolate brown colour always catches my attention when I'm looking out my window into the shade house, it just glows.

I've nicknamed this one 'Mantis' because of the praying mantis babies living on it.

Having got hooked on Goudaea some time ago I've been hunting around for as many different looking ones as I can find.

This is one of a few from a grex I acquired from PineGrove, it is one of Ross' own cross' of *Goudaea ospinae* var *gruberi* x *Goudaea* 'Tiger Tim'. Out of the grex which was often sold as *Goudaea* 'Grubby Tiger' there was quite a mix of colour variants from whites, creams, light greens, light browns, chocolates and more.

This is my favourite one though, it appears different to all the other Goudaea on the Bromeliad Cultivar Registry (BCR) so I'm hoping to register it as:

Goudaea 'PineGrove Mantis' Ross Little / Mitch Jones*, circa 2009/10

Genetics, Species, Varieties, Hybrids and Evolution - Part 2/4

by Frederick H. Gerber - Reprinted from BSI Journal Vol.11, No.5, No.6 and Vol.12, No.1

If a haploid gamete fertilizes a haploid gamete (that is haploid pollen cell with haploid ovule) the zygote (fertilized egg) is made up of a half a chromosome set from each parent and forms therefore a diploid zygote and the individual derived is normal. However, if through some aberration in gamete formation the pollen is diploid (instead of haploid) and it pollenates and fertilizes a normal haploid ovule, the derived zygote will have one chromosome set from one parent and two chromosome sets from the other yielding what are termed triploids. By the same token, a diploid gamete fertilizing a diploid gamete will produce a tetraploid.

Tetraploids can produce diploid gametes and if again aberrant might also produce tetraploid gametes. By way of these abnormal gametes, pentaploids and hexaploids are produced. All of these higher chromosome numbers are classified under the general heading of polyploids. All of these conditions, and more, occur in nature.

The existence of polyploids present special problems in cell division and in hybridization. A normal diploid had two of each chromosome and in meiosis one of each migrates to the new nucleus. A tetraploid has four of each chromosome and two migrate to each pole. However, in triploids there is difficulty in the equal division of three of each chromosome and triploids for this reason are infamously poor producers of functional gametes (egg cells and pollen cells). Triploid orchids are frequently known for their quality and equally well known as being relatively poor stud plants. If, in some rare cases, triploids do produce some viable gametes, they may have one or two sets of chromosomes, or quite possibly one set and a fraction of a second which if present as one chromosome extra is said to have a univalent, or if two it is said to have bivalents. The presence of these fractional sets of chromosomes produce still greater irregularities in cell division and these irregularities may be of such magnitude as to prevent adequate cell divisions and in such cases when they result in the death of the cells or zygote they are called lethals.

Polyploidy, as this duplication above the normal of chromosome materials is termed, has other interesting consequences. Within limits, higher than normal chromosome numbers may favorably improve leaf and flower substance, increase plant stature, increase vigor. However, not infrequently the higher polyploids become dwarfed, wizened, distorted, and less vigorous.

The degree of polyploidy in the Bromeliaceae (or any plant), if presented at all, can only be determined by microscopic and cytologic examination; it cannot be deduced from outward expressions of plant growth or habit.

The chromosomes, as pointed out earlier, are composed of myriad discrete chemical materials which although far from fully understood are known to govern all of the functions and differential development of tissues of the plant, which in total effect is the plant we know and grow. These discrete materials are termed genes. Each gene or group of genes controls or influences some particular function or characteristic. When the expression is controlled by a group of genes we refer to the condition as "factor interaction". The genes are arranged in linear fashion on the chromosomes, and it is not only the gene itself or group of genes but the order in which they occur which is the determinant.

If, on our pair of homologous chromosomes, each pair of adjacent genes is identical, then no matter into which half of the new nucleus either chromosome goes in the meiotic division each of the cells produced will be identical with the other. In this case all gametes so produced will be the same and the plant will breed true; all progeny will be the same in all respects (under conditions of self fertilization) and is said to be homozygous: However, if there are any differences between any of the genes on any of the pairs, or in their arrangement in linear series, the individual plant will produce dissimilar gametes, will not breed true to type on self pollination, and is said to be heterozygous.

For illustration, let us suppose a case where comparable genes on a chromosome pair influence the pattern or lack of pattern on the foliage of our plant. Let us hypothesize that one chromosome has a gene for barred foliage which is recessive and on the homologous chromosome the comparable gene for non-barred foliage is dominant. In this plant, as we see it, the dominant will appear to us as non-barred foliage and we will not be aware of the recessive gene due to masking of it by the dominant. This plant if it flowers will produce gametes some of which will have only the gene for non-barred foliage while others will have only genes for barred foliage. The fertilization involving any gamete with a gene for non-barred foliage, it being a dominant, will mask any gamete having the gene for barred foliage, but should the fertilization be between two gametes having the recessive for barred foliage then the progeny will express this barred foliage characteristic. This sort of expression of the genes introduces two new terms. The plant that we see is the visual expression of some of the genes (but not necessarily all the genes) and is the phenotype. The actual presence of genes visibly expressed and not expressed (which contains potential for later expression) is the genotype.

In plant breeding work we are trying to combine gene traits that we see in the parental types selected. We are often confounded by the appearance in the progeny of traits that we did not see at all in either parental type or the loss of some desirable character. Genes are not always either dominant or recessive; they may also be intermediate in their influence.

Many are familiar with the records Mr. Foster has offered on the breeding behaviour of the clone of *Ae. chantinii* which is apparently self-sterile. This clone of *Ae. chantinii* does produce some viable gametes, as there are bi-generic and interspecific hybrids on record. In no case, however is the barred foliage, which is so desirable in *Ae. chantinii* expressed in the progeny (first generation of F1 progeny). However the genes which produce the barred foliage effect in *Ae. chantinii* are there in the progeny, and were it possible to find self-fertile F1 progeny it would not be unreasonable to hope for the reappearance of this trait in an F2 generation produced from the self-pollination of the unbarred F1. This is a hypothetical case, of course, as I do not believe that there are any fertile F1 generations with this clone of *Ae. chantinii* involved. The lack of evidence does not of necessity refute the possibility.

As expressed above, it is not to be assumed that the genes are either dominant or recessive, for they may be mutually assertive and the F1 progeny may be intermediate between parental types. It must be remembered that there are uncountable genes present on the chromosomes, some of which may be dominant, some recessive, others intermediate, and others may be expressed only when in combination in certain arrangements with other genes, or they may be expressed only when in the presence of other genes on other chromosomes.

Chromosomes, just as the normal division processes of the cells may suffer abnormal patterns in development, may also be modified in the due course of cell division. As the chromosomes shorten and thicken and align themselves with their homologues, they may cross over one another and break at the area of crossing, rejoining the fragments from one chromosome on another. Chromosomes unlike those found in either parental cell may appear in such a way. A modification in the sequence of the genes can occur if there are but a loop in a single chromosome with the fracture coming at the point where the loop crossed itself with a consequent realignment of the genes. And there may be new combinations where homologous and heterozygous chromosomes cross over each other break and rejoin. There can also be the crossing over and translocation of chromosomes parts of non homologous pairs in which case genes will be in combination with other genes with which they were previously related only insomuch as they were in the same cell. These resulting new combinations may produce inferior or superior performance characteristics, and the progeny may succeed or succumb accordingly. Further, in the crossing over of chromosomes there is always the possibility that one chromosome may end up with two spindle attachments and another none. In the division of such a cell the chromosome without spindle attachment could not migrate to either pole and might be lost or appear only as a stray fragment. The loss or adventitious gain of such a fragment may be lethal or have other abnormal effects. The formation of lethals is probably the more typical effect in cases of such a loss.

The accumulation of variations induced by any of these means results in a varied array of botanical forms, and we at our time in earth history find ourselves with a collection of taxonomic entities which have evolved and which are still evolving. We as botanists and horticulturists try to describe, understand, and grow these plants. As part of our horticultural efforts we pollinate to produce seed for the more rapid production of our plants and cross pollinate to produce new hybrid forms and scientifically to understand taxonomic relationships.

In this evolutionary process all of these processes occur. Modifications in genic structures are generally included under the heading of mutations and hybridizations. Selection and isolation perform their own parts of this matter of differentiation of particular taxonomic forms. Mutations are of a variety of natures and may be what are called "point changes" . . . that is an actual chemical modification of a specific gene or group of genes which under natural conditions may be induced by cosmic rays, or under artificial stimulus may result from high temperatures, various chemicals (colchicine), X-Ray, etc., and are novel in that they did not appear in the genic makeup period to their creation. They may be suppressed in the phenotype, resting undetectable in the genotype until some breeding factor or reassortment has removed other possibly inhibiting genic influences, or they may appear immediately in the next generation phenotype. They can perhaps be lethal and may never appear at all. The expression of the latter may be a simple matter of low percentage germination of seed. The lethal influence may be early enough to destroy either gamete or zygote (fertilized ovule) and there might simply be reduced seed production. The presence of such modifications in the genes may lessen resistance to climate or limit the flexibility for adjustment to changing environmental conditions, reduce vigor in some manner, or, on the other hand, the effects may be quite the opposite and serve advantageously in many such ways. Mutations are not always "point changes" and may fall in that wide category of chromosomal inversions, segmental interchanges and translocations briefly described above. They may be losses or duplications of whole chromosome complements or duplications of only fragments and the consequent partial polyploidy.

Mutations and hybridization, both within a species and between species, result in new combinations of genetic materials. Hybridization tends to increase variability by providing new combinations of chromosomal materials and by the breaking down of broad distinctions which serve to define different populations, uniting apparently dissimilar groups into a larger single population which grades from the extremes of both groups. Hybridization between species which results in a sterile F1 may result in an entirely new species if it should be followed by polyploidy of the sterile F1 which may both increase the barrier between the parental types and provide for the fertility of the progeny of an otherwise sterile cross.

To be continued ……..