

Some observations on two early Cape florilegia

E. G. H. OLIVER*

ABSTRACT

A number of early Cape florilegia and codices exist in libraries in Europe and South Africa. Four of these florilegia are closely related and are housed in the Brenthurst Library, Johannesburg, the Botanical Research Institute, Pretoria, the Bodleian Library, Oxford and the Rijksherbarium, Leiden. The first two are compared and discussed in detail in this article. Arising from this comparison, a new interpretation of the interrelationship and origins of the four florilegia is proposed. The key volume is the florilegium in the Botanical Research Institute, Pretoria.

RÉSUMÉ

CERTAINES OBSERVATIONS SUR DEUX ANCIENS FLORILEGIA DU CAP

Un certain nombre d'anciens florilegia et codices du Cap se trouvent dans les bibliothèques d'Europe et d'Afrique du Sud. Quatre de ces florilegia sont étroitement apparentés et se trouvent à la bibliothèque Brenthurst de Johannesburg, à l'Institut de Recherche Botanique de Pretoria, à la Bodleian Library d'Oxford et au Rijksherbarium de Leiden. Les deux premiers sont comparés et discutés en détails dans cet article. Émergeant de cette comparaison, une nouvelle interprétation de l'inter-relation et des origines des quatre florilegia est proposée. Le volume clef est le florilegium de l'Institut de Recherche Botanique de Pretoria.

INTRODUCTION

The Cape flora has for three centuries excited the interest of botanists. With the remarkable increase in the exploration of the world from the fifteenth century, new areas with fascinating plants and animals became known to the educated and knowledge-hungry world of Europe. The Cape of Good Hope became a vital stopping-over point for the many ships going to the East in search of spices and riches. It was thus inevitable that plants growing at the Cape found their way back to Europe. Soon the demand for these unusual plants, both to grow and to possess as dried specimens or paintings, increased considerably.

During the governorship of Simon van der Stel from 1679 to 1699, there began a period of considerable exploration and expansion. This was accompanied by a significant increase in the scientific knowledge of the indigenous flora and fauna with Van der Stel himself as the worthy patron. It is known that he commissioned the artist Claudius to record by means of sketches the natural history of the area and also the gardeners, Oldenland and later Hartog, to build up "one of the most beautiful and curious gardens I have ever seen" (Tachard, 1686).

Illustrated books on the Cape flora were not available at the time and so collections of paintings, florilegia or codices of animals were also included, were produced for influential patrons of natural history. Among these florilegia or codices were the Codex Witsenii, Codex Bentingiana, Codex Comptoniana, Dolneus's Florilegium, Van der Stel's own Collection and the Codex accompanying the official report of his Expedition to Namaqualand in 1685/6. Gunn & Codd (1980) give a fine overview of early Cape botanical history in which they discuss these works and their significance.

Examples of early Cape florilegia and codices exist today in various institutes and libraries in Europe and South Africa, namely:

Botanical Research Institute, Pretoria (BRI)	Brenthurst Library, Johannesburg (BFC)
Rijksherbarium, Leiden (LD)	Bodleian Library, Oxford (OXF)

South African Museum, Cape Town (SAM)
Africana Museum, Johannesburg (IPA)
British Museum (Nat. Hist.), London (BM)

South African Public Library, Cape Town (SAPL)
Trinity College, Dublin (TCD)

The works mentioned in this paper will be referred to by the abbreviations given above for the institutes and libraries where they are housed. Much has been published about these works by Waterhouse (1932) Barnard (1947), Smith (1952), Jessop (1965), Edwards (1965), Kennedy (1967), Macnae & Davidson (1969), Gunn & Du Plessis (1978), Waterhouse (1979) and Gunn & Codd (1980).

The florilegia in the first four institutes mentioned above are of particular interest to me because of their close relationship, one of them being in the library of the Botanical Research Institute, Pretoria. Jessop (1965) published a detailed account of this florilegium, but unfortunately at the time did not know of the existence of the other three florilegia. Gunn & Du Plessis (1978) edited and wrote the introduction to the so-called Flora Capensis of Jakob and Johann Philipp Breynia, housed in the Brenthurst Library and which was reproduced *in toto* by the Brenthurst Press, Johannesburg. They were unable to give a detailed comparison of the four florilegia. Resulting from my close examination of BFC and BRI while writing a review of the BFC reproduction for Bothalia (Oliver, 1980), I have been able to extend the published notes and observations on the two florilegia in South Africa. I have not had the opportunity to examine the florilegia in Oxford and Leiden and accept the statements made by Gunn & Du Plessis (1978), who have consulted them. In the discussions which follow, reference is made to the numbering of the plates (as arranged by Gunn & Du Plessis) in the Brenthurst reproduction of the Breynia's Flora Capensis.

BINDING

The most noticeable difference between BFC and BRI is in the size of the volumes, where the page size in BFC is 310 × 195 mm and in BRI 393 × 250 mm. This difference in size is significant as will be seen when the origins of the two florilegia are discussed later on. The Brenthurst reproduction of BFC has

* Botanical Research Institute, Department of Agricultural Technical Services, Private Bag X101, Pretoria, 0001.

been reduced to an even smaller size, the title page being 230 mm long instead of 270 mm (Gunn & Du Plessis, 1978). Reference to the list of plates at the beginning of BFC shows that 47 of the 102 paintings had to be reduced.

The binding of BFC is full red morocco leather with gold tooling including the Breynes's coat-of-arms. The pages have been gilded. On the title page it is stated that the volume was bound by the younger Breyne in 1724. BRI on the other hand is plainly bound in vellum, much like the codices SAM and SAPL; the tooling is blind and the edges of the pages have been spattered with red and blue ink. On the front cover there is a distinct erect capital P done in slightly faded black ink. Barnard (1947) mentions a capital Q on the front cover of SAM. I examined SAM and find that the Q slants obliquely to the right, is smaller and is placed at the top of the front cover.

Gunn & Du Plessis mention the binding of the pages of BFC, but give no details about the gatherings. It was not possible for me to ascertain the exact binding sequence as the original book had recently been restored. They do, however, mention that forty-nine leaves have no fold-marks and forty-nine have fold-marks which indicate that these folded leaves were painted on at the Cape, folded and then despatched to Europe. They also mention the extra pieces of paper which had been glued into these folded leaves, when binding took place, in order to bring all the pages up to the same size. Some of the paintings on the larger sheets had in turn been cut during binding. This is most noticeable on the coloured frontispiece and plates BFC 30 and 42.

BRI is bound into gatherings of 5 or 6 sheets with one gathering of 7 sheets. These sheets are folded giving gatherings of 10, 11, 12 or 13 pages with three instances of single pages having been tipped in during binding. Jessop (1965) points out that the same cutting of paintings occurred in BRI and feels that the paintings must have been executed before the book was bound. The cut paintings occur only on BRI 8, 68, 86 and 109 to any extent, but far less than in BFC. One's interpretation of the term "binding" is, to my mind, important. I feel that the book was made up with a softish cover, as is found in SAPL, to form a working volume into which the paintings could be executed. At a later stage the volume was slightly trimmed when the soft cover was replaced by a proper vellum binding for placing in some person's library. The 68 blank pages at the end of BRI give a very strong indication that the water-colours were painted into the book. Another point which supports this view is the statement by Tachard (1686) that Claudius "had already completed two thick volumes of divers plants, painted from nature".

The other florilegia in South Africa are rather similar to BRI in appearance. IPA is most like BRI being similar in size and vellum binding. The paper is of the same thick quality and the paintings are done on the recto of each page with binding in gatherings. In SAM and SAPL the volumes are much smaller, like BFC. In these two florilegia the binding of the sheets is interesting. The leaves are folded double and bound singly giving a lot of 2-paged gatherings. The paintings occur on the recto of the first page with the descriptions on the verso in SAM and the recto of the second page in SAPL.

Both Gunn & Du Plessis and Jessop give details of the watermarks found in the respective florilegia and discuss the possible origin and date of manufacture of the paper. In BFC there is a number of different types of paper. Gunn & Du Plessis did not, however, mention the connection between watermarks and countermarks presumably due to the difficulty of unravelling the binding sequence of so many varied sheets. They do mention the similarity of the watermarks in BFC, SAM and TCD. BRI, on the other hand, has very uniform paper of only two types. Jessop gives an illustration of the main watermark, the Strassburg lily with coronet, mantling and 4WR and the main countermark, IHS/DYSVLI (cf. left-hand pair, Fig. 1 in the present article). He noted that a few pages possessed a different countermark, IHS/RM. This is, in fact, the countermark for a slightly different watermark which is more crudely produced and of smaller size (cf. right-hand pair, Fig. 1). The countermark itself is very much cruder, as well, and this suggests either an inexperienced papermaker or paper of earlier origin before the refinement of the watermarking technique. This cruder watermark occurs in paper that takes up two bound gatherings of 22 pages between paintings 111 and 132.

The main watermark occurs a number of times in IPA, but with different countermarks. It also occurs in the Claudius animal paintings in the Africana Museum in Johannesburg, as figured by Smith (1952). It can also be seen in the binding paper of Commelin's *Horti Medici Amstelodamensis* (1697–1701) and in the body of the book where different mantling and the countermark of Pieter van der Ley occur. Both the main watermark and countermark of BRI occur once in BFC.

Churchill (1935) states that the Strassburg Lily with 4WR was first used in 1636 and is of German origin. Jaffe (1930) and Heawood (1950) say it was made at the papermill of one Wendelin Richel (Riehel), which began production in 1583 without countermarks. This watermark became associated with quality paper and was much copied in Europe. Jaffe also states that the countermark, IHS surmounted by a cross, "*In Hoc Signo*", was first used in the Lombardy area in Italy from 1481–1580 before being taken up in the Lothringen area of Germany. The version with DYSVLI was one of the many countermarks used by J. Villedary (Vildary) whose mills produced paper over a period of 150 years from 1658–1812. The countermark with RM is unknown, but noted by Heawood (1950).

It is not possible, using currently available references, to put any date to the manufacture of the paper in BRI. Jessop (1965) feels that the paper was made in about 1700. Gunn & Du Plessis (1978), however, were able to use the BFC watermarks and countermarks more usefully and they dated most of the BFC paper to the last half of the 1600's. This led them to the assumption that BFC was the oldest volume in the series of four similar florilegia. A more exact date can be deduced by reference to certain statements made by J. P. Breyne and Seyler in the *Prodromi* of 1738. Jakob Breyne was said to have left his collection of paintings, later bound into the volume BFC, to his son on his death in 1697. Therefore, if no additions were made by the son, one can deduce that the paintings must have been executed before 1697. Jakob Breyne had in 1678 produced his *Centuria* containing among the 100 plants, illustrations of 48 Cape species, including

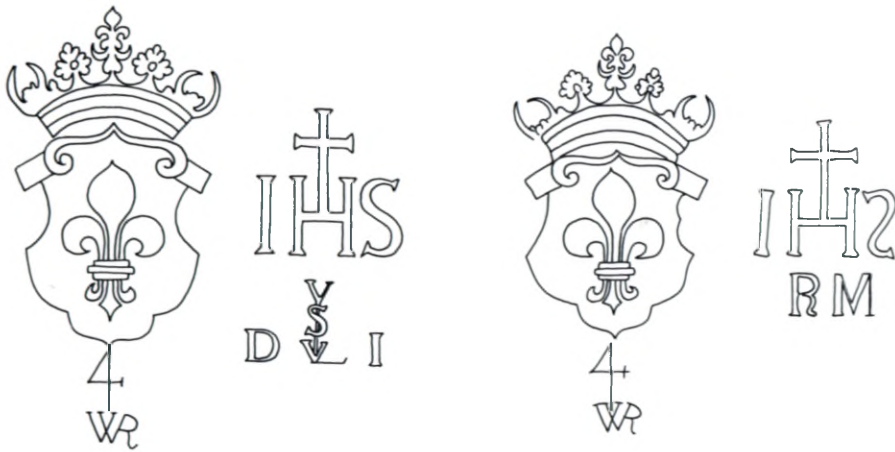


FIG. 1.—Watermarks and countermarks in the paper in the BRI forilegium, $\times 0.5$.

Erica cerinthoides, but did not use any BFC paintings for these plates. Thus it can be assumed that he did not possess any BFC paintings at the time. This means that he must have received the paintings from the Cape between 1678 and his death early in 1697.

THE PAINTINGS

The BFC volume contains water-colour paintings of 102 species of which 66 occur in BRI and 36 are exclusive to BFC. Included in the last set are two paintings which are known to have occurred in BRI, but are now missing (see under Numbering). Gunn & Du Plessis (1978) recognized two different qualities of art-work and grouped the paintings into Group A of superior quality and Group B of poorer quality. They ascribe 37 paintings to Group A and 65 to Group B. I would, however, have placed the two non Cape paintings, BFC 60 and 69, in Group A. I would also regard BFC 18, *Spiloxene alba*, as being a Group A painting and BFC 42, *Chasmanthe aethiopica*, as Group B. This leaves all the 36 Cape species exclusive to BFC belonging to the Group B painting quality. I have followed the same arrangement of groups for convenience in this comparison.

The BRI volume contains water-colour paintings of 148 species of which there are the 66 shared with BFC and 82 exclusive to BRI. In my opinion the 148 paintings can be divided into 115 being Group A and 27 being Group B with 6 paintings being impossible to place with certainty. All of the 82 paintings exclusive to BRI are of Group A quality. The Group A paintings, however, can be subdivided into a possible two or even three different styles. The majority matches the Group A style paintings in BFC. At the beginning of BRI there is a series of paintings, namely 3, 5, 6, 7, 8, 9, 10, 17, 18, 19 and 20, which are in a completely different style, rather vague and lacking precise details and yet not crude like some of the Group B paintings. These paintings are undoubtedly the work of a different artist and strike me as being originals. Their quality and colours remind me of the work of the "second artist" in IPA.

Most of the Group A paintings are accurate and beautifully executed. Towards the end of the series of paintings the quality of the paint seems to change, the greens being much deeper in colour with a bluer tinge and the paint is much thicker. These paintings could also be the work of another artist. One painting, BRI 135, stands out as completely different from the rest of the numbered plates. It is of *Crassula coccinea*

and is classified as a Group B painting, but gives the strong impression of having been executed in the Claudius style like the paintings occurring in SAM and SAPL. The paint is of quite a different texture and the painting lacks any perspective. The extra painting of *Erica cerinthoides*, an unnumbered one occurring with BRI 132, is mentioned by Jessop as also unlike any others in style and quality of paint. This paint is very reminiscent of the powdery type used in the Group A paintings in BFC as it is smudging slightly and has left an imprint on the recto of the preceding page. This feature also occurs on BRI 99 in the browns of the rather large tuber of the *Bulbine tuberosa*.

The differences between the Group A and Group B paintings in BRI are very marked, particularly where the two styles occur on the same page, e.g. BRI 55, *Lobelia pinifolia* (A) and 56, *Drosera cistiflora* (B); BRI 71, *Pelargonium longifolium* (A) and 72 *Moraea tricuspidata* (B); BRI 75, *Mesembryanthemaceae* (A) and 76, *Galaxia ovata* (B) and 77, *Dorotheanthus bellidiformis* (B). In these examples it is always the Group A painting which is on the left-hand side of the page and numbered first. This would indicate that the small Group A painting was done first leaving space on the page for additional species to be illustrated at a later stage which, in the above cases, turned out to be rather crude Group B paintings. This feature of the two distinct qualities of paintings on the same page is important in respect to the problem of the origin of these florilegia.

Gunn & Du Plessis (1978) are of the opinion that the paintings of BFC are the originals in the set of four very similar florilegia. They based their opinion on the dating of the paper—"The paper used in the Breynes's 'Flora Capensis' is the earliest and of a period consistent with the possibility that it is the original set". This might be true of the paper, but not of the paintings, as the following points obtained from a detailed comparison of BFC and BRI will show. Gunn & Du Plessis (1978) state that the volumes in Oxford and Leiden are obviously inferior copies, which opinion I must accept not having had the opportunity to examine them myself.

The most noticeable difference between the BFC and BRI paintings in the Group A series is the shortened dimensions of many of the paintings in BFC. The floral parts of the paintings are painted the same size as those in BRI, but the vegetative parts, particularly the stems, have been reduced to be

able to fit onto the smaller size of the BFC paper, in some cases so drastically as to make the painting disproportionate. Good examples of this feature may be seen when comparisons are made of BFC 19 and BRI 125, *Spiloxene capensis*; BFC 20 and BRI 126, *Moraea aristata*; BFC 40 and BRI 109, *Gladiolus maculatus* and BFC 38 and BRI 68, *Gladiolus carneus*. The last example is illustrated in Fig. 2 where a glance will show the more natural proportions of the BRI painting. This feature would indicate that the BRI paintings could not have been copies from BFC and that the reverse is the case.

Fig. 2 also illustrates another important feature, namely the lack in BFC of certain details present in BRI paintings. In the BRI paintings of *Gladiolus carneus* there are an additional flower bud, terminal bracts and a leaf. There is also another very important and significant feature about this BFC painting, and that is the lack of paint in the region of the ovary of the basal flower, where the artist forgot to fill in the colour. This also occurs in BFC 39, BRI 122, *Gladiolus hyalinus*. Further examples of parts of the plants being left out in the BFC paintings can be found in paintings which lack roots, hairs, flowers,



FIG. 2.—*Gladiolus carneus* Delaroche. Left, painting number 68 from the BRI florilegium, $\times 0.5$; right, painting number 38 from the BFC florilegium (Brenthurst reproduction), $\times 0.75$.

corms or branches. An additional very marked example of this feature is shown in Fig. 3, *Polygala bracteolata*.

There are, however, a few examples where this loss of details in BFC is reversed and one finds BFC paintings with more parts. An example is shown in Fig. 3, *Empodium plicatum*, where the lateral flower has many more tepals than the species should have, but this is more the result of an inaccurate copier. In some of the species of *Moraea* in Group B, the

BFC paintings have the old leaf bases included. In BFC 70, BRI 89, *Leonotis leonurus*, additional flowers and another inflorescence are depicted. All of these last examples are paintings of Group B and these I regard as copies in both florilegia, that is, copies from another set of paintings which may or may not have been the originals.

The act of copying is always fraught with the possibility of slips, misinterpretation or plain re-interpretation by the copier. This is evident in the

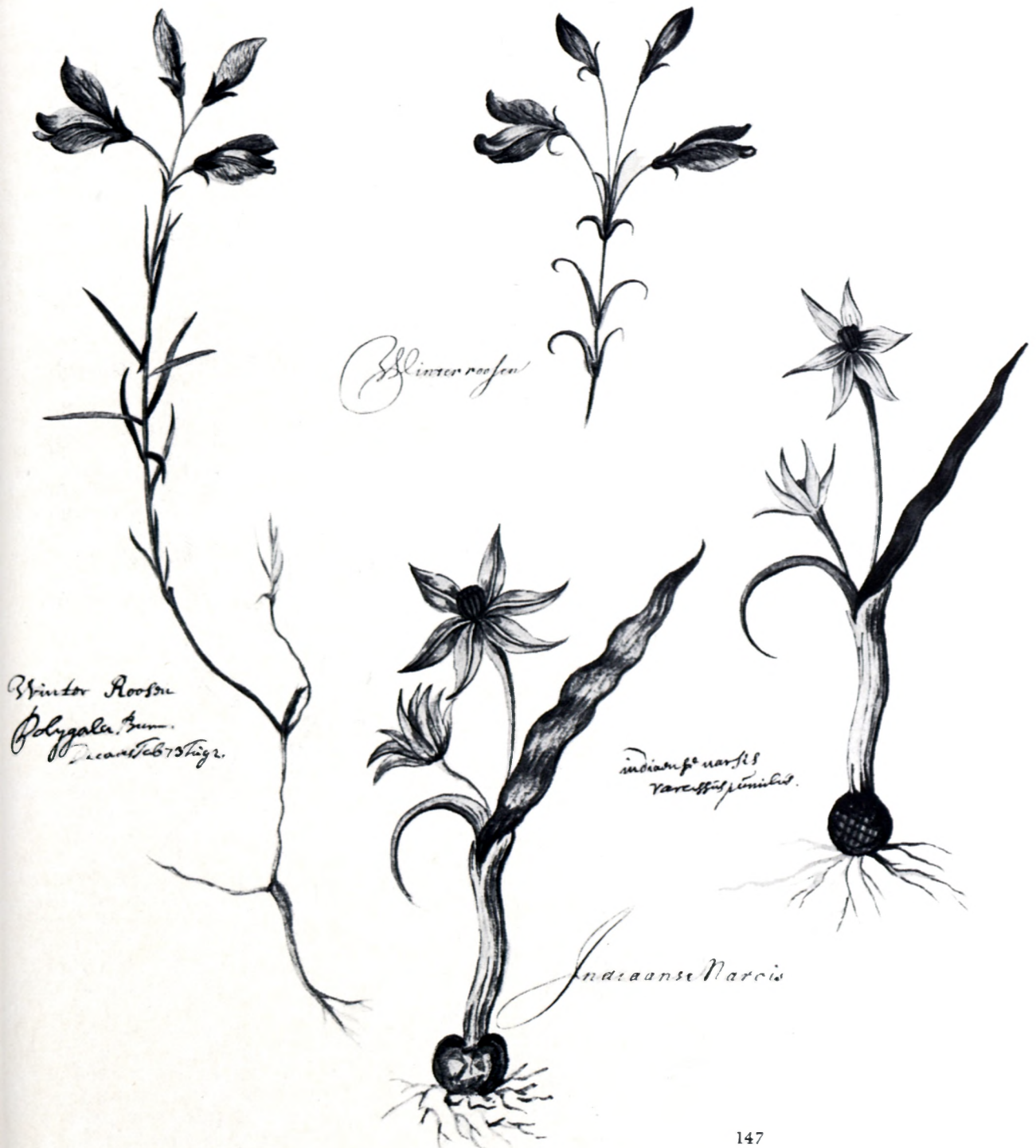


FIG. 3.—*Polygala bracteolata* L. Left, painting number 63 from the BRI florilegium; centre top, painting number 81 from the BFC florilegium (Brenthurst reproduction), both $\times 0.5$. *Empodium plicatum* (L.f.) Bak. Right, painting number 97 from the BRI florilegium, $\times 0.5$; centre bottom, painting number 62 from the BFC florilegium (Brenthurst reproduction), $\times 0.70$.

differences that occur between some of the BRI and BFC paintings. In copying the artist has produced extra curliness or waviness into the organs that he was copying. This is clearly seen in the leaves of *Empodium plicatum* shown in Fig. 3 and in the very stylized leaves of *Polygala bracteolata* in the same figure. Further examples of this type can be found in BFC.

As I am interested in ericas, I was particularly struck by the differences between the two similar renderings of *Erica cerinthoides*. In BRI 43 the leaves are shown in distinct whorls and are themselves depicted trigonous whereas in BFC 90 the leaves are randomly scattered and executed rather poorly and haphazardly by the single stroke of a brush. One can also see that the copier in BFC could not easily interpret the BRI flowers which must have been somewhat passé when painted.

Another interesting and important feature, which was also noted by Jessop (1965), is that there are several paintings in BRI which have faint pencil outlines still remaining on the pages. These are of additional parts of the plants which the artist must have decided not to use. Two clear examples are BRI 12, *Adenandra villosa*, and BRI 109, *Gladiolus maculatus*. This feature gives a strong indication that the paintings are originals and not copies.

The strangest anomaly found in the comparison of the paintings occurs in the paintings of *Sparaxis bulbifera*, BRI 102, BFC 32, both Group B paintings. The paintings have their lower halves reversed. Reversing of paintings is of course commonly encountered in engravings used for printing plates.

From the above comparison of the paintings it is my opinion that the Group A paintings in BRI are the originals and that the BFC paintings were all copied from BRI. An examination of the paints used lends additional weight to this view. In BRI the water-colours are of very good quality with most of the colours still unchanged. In BFC the paintings were executed with a very powdery paint which, as Gunn & Du Plessis (1978) noted, has changed colour in a number of cases, but due to its powdery nature, it is being smudged and rubbed off with time. As a result the coarseness of the paper is accentuated and clearly seen in the Brenthurst reproduction particularly on BFC 19, *Spiloxene capensis* (BRI 125).

The quality of the BRI Group A paintings, most of which are petaloid monocotyledons, is outstanding. The perspective in the flowers is extremely good and is far superior to any that I have seen in the other early florilegia. Some of the bulbs and corms have been painted in very fine detail, for example, BRI 125, *Spiloxene capensis*; BRI 132, *Homoglossum watsonium* and the leaf-base in BRI 49, *Urginea duthieae*. But many bulbs, corms and bases of plants have been done in much less detail. This seems, in my opinion, to indicate that the leaves and flowers were painted in the field with only pencil sketches of the vegetative parts followed by a completion of the colour work at a later stage, perhaps at camp in the evening or even at home.

Several persons such as Petiver, Witsen, Burman and the Breynes stated that their paintings were executed from live plants at the Cape. The demand for paintings in the late 1600's and early 1700's must have been due to the lack of colour reproductions in books and it is certain that copies of

originals were made to satisfy this demand. Here the enigma of the Codex Witsenii and Claudius paintings is the prime example. Copying, whether at the Cape or back in Europe, was common. A glance through IPA or the reproduction of the plates by Kennedy (1967) will show that the painting of a legume occurs twice with only a few pages separating them. The folded paper of the Group B paintings in BFC points to the copying having been done at the Cape.

It was suggested by Gunn & Du Plessis (1978) and by Jessop (1965) that some of the paintings could have been executed from plants cultivated in Europe. As many of the plants in BFC and BRI are geophytes they could easily have been grown in Europe at the time. However, one or two features point to a wild origin for the plants, certainly of the Group A species. These include the damage to the leaves caused by insects and other animals, and so accurately portrayed by the artist. The best example of this feature is BRI 42, BFC 35 of *Babiana tubiflora* which has its leaves almost completely chewed off by some grazing animal. As Gunn & Du Plessis (1978) point out "This is a very clear indication that the painting was made from a plant which grew wild at the Cape and not from a cultivated plant". Further examples of this type may be found in BRI 45, *Wachendorfia paniculata*; BRI 52, *Ornithogalum thyrsoides* and BRI 92, *Ixia paniculata*. Also, the natural dimensions of the vegetative parts of the plants suggest that the subject was a wild plant rather than one grown under glasshouse conditions in Europe.

In this discussion of the paintings in BFC and BRI it is worth mentioning that in BRI there are various pieces of plant debris lodged in between the pages. In the fold with BRI 131, on which the unnumbered painting of *Erica cerinthoides* occurs, there are three leaves of *Erica cerinthoides*. These leaves could either have become lodged in the fold when the species was being painted or at a later stage when the owner of the volume was perhaps comparing a specimen with the painting.

NUMBERING

The paintings in all of the four similar florilegia are numbered, according to Gunn & Du Plessis (1978). These numbers provide an important feature for comparison. The important volume is BRI. In this volume nearly all the paintings are numbered near the base of each plant in a consecutive sequence up to 142. Strangely the first painting is not actually numbered. Number 142 is followed by 10 unnumbered paintings and then the last two in the set numbered as 143 and 155. The sequence of sheets in the binding gatherings has not been interrupted. Four pages have, however, been cut out of BRI leaving gaps in the numbers, viz. BRI 13, 14 and 15; 27; 50; 90 and 91. As Gunn & Du Plessis (1978) state, comparison with BFC gives the identity of two of these missing paintings, because copies of BRI 27 and 90 occur in BFC. An additional three pages have been cut out of BRI near the end of the paintings, but, as no numbers are missing in the sequence, one may assume that these pages were removed before the numbering was done as stated by Jessop (1965). These pages may or may not have had paintings. Despite the anomalies in the numbering towards the end of the paintings there should have been a total of 155 paintings, but with the loss of seven there now remains the total of 148

The first set of numbers up to 98 is written in a very neat small writing with black ink while the numbers 99–143 are written in a different slightly larger writing and paler ink. Number 155 is written in another handwriting and number 57 in yet another. In several cases already mentioned, two completely different styles of painting occur on the same page and also on the same sheet of paper but separated due to the binding. These are all numbered in the sequence. Why there are two different main handwritings in the numbering and who did them cannot be answered. The numbers might have been done by the artists. Why there is the batch of 10 unnumbered paintings near the end is also a mystery. The fact that the paintings were numbered consecutively regardless of the painting styles shows that the numbering must have been done directly into the volume and must therefore be a series exclusive to BRI.

BFC has 85 pages numbered consecutively from 2–86. These numbers have been written all in the same handwriting in the top right-hand corner of the recto of each page. These numbers refer to the pages and not the paintings as on 14 pages there are two, three or four paintings. Gunn & Du Plessis (1978) give references to these 'Folio' numbers. In BFC there are 35 paintings bearing numbers near the base of the plant depicted and these numbers are the same as those on the BRI paintings of the same species. All the paintings bearing these numbers in BFC belong to the superior Group A, while all the Group B paintings in BFC are unnumbered (cf. Fig. 2).

Gunn & Du Plessis (1978) miss the real significance of this very important point which gives additional proof that the BFC Group A paintings must have been copied from BRI. None of the 31 paintings in BFC belonging to Group B and shared with BRI is numbered. This suggests that the BFC Group B paintings were copied from some originals in another volume without any numbering and that the Group A paintings were later copied from BRI together with the noting of the BRI numbers.

Two paintings with numbers stand out as unusual. BRI 63, *Polygala bracteolata*, a Group A painting, occurs in BFC as a Group B painting (cf. Fig. 3). If the copying of the Group A paintings had been so good why had this species been copied so poorly. The other unusual painting is BFC 13, *Hessea cinnamomea*, Group A. In BFC it bears the number distinctly written as 105, but BRI 105 is of a Group B leguminous species. *H. cinnamomea* in BRI is 108, but the 8 is rather indistinctly written and at a glance could well be mistaken for a 5 which is most probably what the copier did.

Gunn & Du Plessis (1978) state that the two volumes in this series of four similar florilegia, OXF and LD, both contain paintings they regard as inferiorly executed copies. They state that "The numbers at the base of all the paintings . . . are in the first instance related to this volume 'BFC' where the numbers appear chronologically and related to page numbers". The OXF volume is vellum-bound and has the paintings pasted onto the page and signed "A.B. del". They mention that one of the younger Breyne's daughters had signed her own paintings "A.B.". However, Edwards (1964) states that this volume forms SHERARD MS. 188 and is a collection of paintings no doubt drawn by Anthonie van Breda, of plants growing in gardens in Holland. Boerhaave bought the volume for Sherard from Levinus Vincent who through marriage acquired van Breda's famous museum. This relationship of the

volume with van Breda and its very strong similarity with BRI and BFC is very confusing and needs further investigation.

The LD "volume" is in fact a set of loose paintings of inferior quality which were acquired by D. van Rooyen at two auctions in 1778 and 1779. Gunn & Du Plessis (1978) suggest a possible link between some of these paintings and the collections of Seba.

There occurs in the BRI volume with the numbering on only 17 paintings in the first 96, a plus sign. In some cases this plus sign looks as though it was done by the numberer, in others by Burman (cf. Fig. 4). All of the 17 paintings belong to Group A. The significance of this sign is as yet not understood.

COMMON NAMES

BFC and BRI have a number of paintings accompanied by a common name in Dutch (cf. Fig. 3) or occasionally a Latin polynomial. They are all written in the same, but very different, handwriting in each volume. These common names were given to nearly all of the Group B paintings but a few were given in BRI to Group A paintings by the same person (cf. Fig. 4, left). In BRI, 27 paintings have common names, 23 Group B, 4 Group A with the remainder of Group A without a common name. BFC has the same 27 paintings with common names except that BFC 8, *Ornithogalum thrysoides*, is a quite different painting of Group B as opposed to BRI 52 which is one of the 4 Group A paintings. BFC has 28 extra paintings of Group B with common names. One anomaly is the occurrence of 7 shared paintings of Group B with common names. In BRI 43, *Erica cerinthoides*, there is an additional set of words written in the same handwriting "*Erica coris folio hispido cerinthoides africana Breynia*", which is the Latin polynomial given to the species by Jakob Breyne in his *Centuria prima* of 1678.

The handwriting in BRI is very distinctive and could well be the same as that used to write the notes accompanying the animal paintings in the *Codex Witsenii*, SAM; cf. FOL. 160 reproduced by Barnard (1947). This handwriting is not the same as that occurring on the botanical paintings which, according to Smith (1952) quoting a former Chief Archivist, Graham Botha, is identical with that in IPA. The handwriting of the notes in SAPL is also of a similar style. This could suggest that the artist wrote the names in BRI and the notes in the SAM animals, which are regarded as having been copied at the Cape for Nicolaas Witsen some time before 1692 (Barnard 1947).

A number of the common names differs slightly between BFC and BRI, most being differences in spelling which could be attributed to the home language of the copier, e.g. middags/middaghs; bloem/blom; Ringel/Rengel; —aanse/—aense; sterre/starre. Some peculiar differences are noted here:

BFC 90: Pelooan Bloem	BRI 43: Pelicaen blom
BFC 78: Heutel	BRI 62: Huetel
BFC 17: Hyacins tuberosa	BRI 85: Hyasinta tuber-
peruanus	osus peruanus
BFC 70: Piramus infralia	BRI 89: Piramus in jitalia

These anomalies would indicate copying from the same original, but in BFC by a rather poorer copier of words.

Jessop (1965) pointed out that the common names in BRI must have been added to the bound volume, as many of them have been blotted on the verso of the preceding page.



FIG. 4.—*Wachendorfia paniculata* Burm. Top left, painting number 45 from the BRI florilegium, $\times 0,36$; top right, Tab. IX from Breyne's Prodrumi (1739), $\times 0,5$. *Monsonia speciosa* L. Bottom left, Tab. XXI from Breyne's Prodrumi (1739), $\times 0,5$; bottom right, painting number 22 from the BRI florilegium, $\times 0,36$.

ANNOTATIONS

The BRI volume was at one time in the possession of Johannes Burman as it was inscribed by him on 3 August 1755 [cf. fig. 1 of Jessop (1965)]. Burman also annotated every painting in BRI. Most of his annotations were probably done about the same time as the same dark ink and style of writing was used by him. This was done in the volume as is evidenced by the blotting of the ink on the verso of the preceding pages. He quotes many times Breynes's *Prodromi* of 1739 and his own *Rariorum Africanarum Plantarum* of 1738/39 using Latin polynomials. However, on BRI 112, *Antholyza ringens*, he cites Linnaeus's *Species Plantarum* of 1753 and quotes his description. Binomials were added by Burman using a finer pen. Additional annotations were also added in a larger clumsier handwriting using paler ink.

PUBLISHED WORKS

Paintings from both BFC and BRI are known to have been used in published works, namely, Breynes's *Prodromi* (1739) and Burman's *Rariorum Africanarum Plantarum* (1738/39). Mention has already been made of these by Jessop (1965) and by Gunn & Du Plessis (1978). However some extra observations not noted by them throw a different light on the relationships of the florilegia and the above publications.

The younger Breyne undoubtedly used the BFC paintings as the originals from which 15 of the engravings in the *Prodromi* of 1739 were copied. These paintings occur in both BFC and BRI but a very careful comparison of the water-colours and the engravings shows that the engravings were made

from BFC. All of these originals fall into the Group A paintings. Seven engravings can be linked to water-colours which occur only in BFC and these are all Group B paintings.

Of significance are three engravings which can be linked to water-colours of Group A found only in BRI. Tab. VII fig. 2 of *Gladiolus carneus* is taken from BRI 47. Gunn & Du Plessis (1978) compared this engraving with another quite different water-colour of the same species which occurs in both florilegia and is illustrated in the present article in Fig. 1. Tab. IX, fig. 1 in Breynes's *Prodromi* is of *Wachendorfia paniculata* which is taken from BRI 45 and is illustrated in the present article in Fig. 4. Of particular interest is the third example, *Monsonia speciosa* on Tab. XXI, fig. 2, which is taken from BRI 22 (cf. Fig. 4 in the present article). On the same Tab., fig. 1 is of *Senecio cymbalarifolius* which is represented in both florilegia, Group A paintings, and in the text is cited as being "*ex Flora nostra Capensis*". But in the text for *Monsonia* the Breynes state "*in Flora nostra Capensi*". This water-colour does not exist in BFC. From their statement it would appear that the Breynes had had access to a copy of this species, which had not been bound into BFC, or even access to BRI. If the latter were the case why then had the Breynes not reproduced more of the superb water-colours.

J. Breyne had collected together the paintings for BFC before his death in 1697. His son, J. P. Breyne, when mentioning the paintings in the *Prodromi* did not give exact details of their origin other than that they came from the Cape, e.g. Tab. XII, fig. 1—"*Huius iconem accepit Parens ex Capite bonae spei vivis coloribus pictam*".

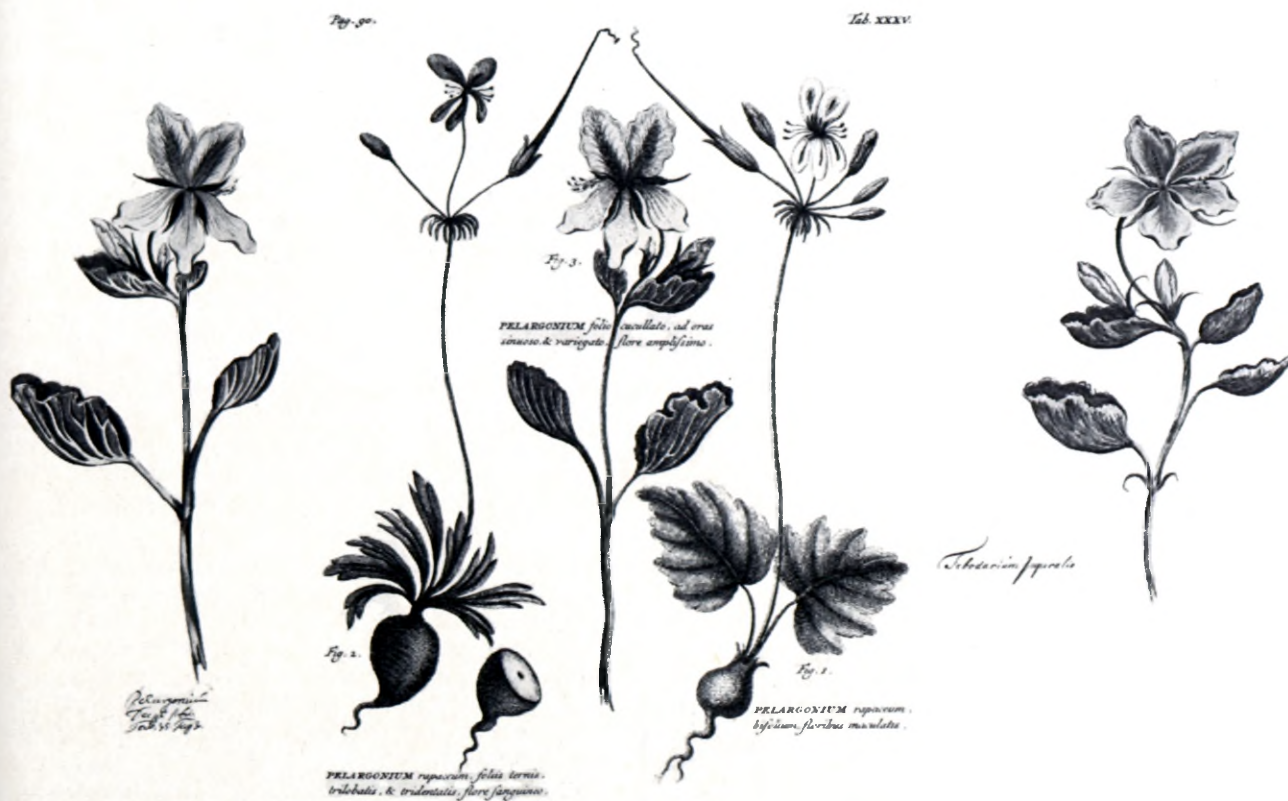


FIG. 5.—*Pelargonium cucullatum* (L.) L'Hérit. Centre, Tab. XXXV, Fig. 3, from Burman's *Rariorum Africanarum Plantarum* (1738), $\times 0.5$; left, painting number 103 from the BRI florilegium, $\times 0.25$; right, painting number 54 from the BFC florilegium (Brenthurst reproduction), $\times 0.30$.

Burman's *Rariorum Africanarum Plantarum* contains descriptions and engravings of some Cape plants. Burman attributes 92 of them to the Codex Witsenii, 34 to Herbarium Witsenianum and 33 to the Collection or Codex Simon van der Stel. Of all these figured plants six can be identified as being almost identical to water-colours in BRI. In the text accompanying the plates he attributes five of the six species to the Collect. van der Stel. e.g. Tab. XII, fig. 2, "*atque haec in Collect. van der Stel eleganter depicta mihi obvenit, unde hanc exhibemus*". All of these species depicted are Group B paintings. The remaining 28 species attributed to the Collect. van der Stel do not occur in BRI. Therefore it must be assumed that Burman had all these plants reproduced as engravings from a volume which he knew was the Collect. van der Stel and that the five Group B copied water-colours in BRI came from that source. As stated by Jessop (1965) and by Gunn & Codd (1980) this volume is not traceable.

The remaining BRI water-colour depicted in Burman's work is of *Oxalis purpurea* on Tab. XXVII, fig. 3 and is attributed to the Codex Witsenii. This is the figure that Jessop was concerned about because of the hairiness and stamens which Burman had added. Reference to the text shows that Burman referred to other works in which the species was mentioned, namely those of Commelin who described his species as glabrous, of Breyne as hirsute (in fact only the calyx) and of Herman also as hairy and had thus adapted his figure accordingly. There is, of course, the possibility that the copier for BRI had merely omitted the hairs and stamens, which were present in the original.

In Fig. 5 of the present article showing *Pelargonium cucullatum*, the centre illustration is taken from Burman's work, Tab. XXXV. He cites in the text "& ex Collect. D. van der Stel hanc publici juris facimus". On the left in Fig. 5 there is the same species as depicted in BRI 103 and on the right is BFC 54. The similarity between the BRI water-colour and the Burman engraving is obvious. The BFC water-colour is rather far removed, but can be seen to bear some resemblance. Both water-colours belong to the Group B copied paintings. It has been shown earlier in this article that the BRI copies are probably truer copies of the originals than the BFC copies. One would then assume that the BRI and BFC paintings were copied from the same original which was in the Collect. van der Stel. The other two species of *Pelargonium* illustrated in this plate were copied from the Codex Witsenii and are almost identical to the water-colours attributed to Claudius in SAM, IPA and TCD.

One plate, Tab. LXXV, in Burman's work is of special interest. In it are depicted *Crassula capensis* (fig. 4) and an unidentifiable composite (fig. 5). The former is present in both BFC and BRI, but the latter is only in BFC. In the text Burman states for the *Crassula* "*Fructus nec semina adpicta sunt in Collect. D. van die Stel, unde hanc cum subsequente productimus*", the subsequent figure being the composite. This would indicate that the Breynes had had their painting copies from the Collect. van der Stel.

Barnard (1947) gives a detailed description of SAM which he says is part of the Codex Witsenii particularly as it is autographed by Witsen. The Codex contains 12 water-colours which Burman figured and attributed to the Codex Witsenii. These engravings were taken from SAM and not from the almost identical paintings in IPA, SAPL or TCD,

as a detailed comparison of the paintings and engravings shows a closer match with SAM. Many of the plates which Burman attributes to the Codex Witsenii can be traced to that very fine Codex, IPA, in Johannesburg. This has been discussed by Macnae & Davidson (1969).

CONCLUSIONS

The four early florilegia housed in Libraries in Pretoria, Johannesburg, Oxford and Leiden consist of the same basic set of water-colour paintings of Cape plants. These paintings can be divided into two distinct groups, A and B, on the style of painting and the quality of detail. The key volume is the florilegium, BRI, housed in Pretoria.

In BRI the quality of the Group A paintings is outstanding, as the paintings have more natural proportions, in some cases contain more and better details and were executed with good quality paint. They must be regarded as originals. The Group B paintings are all reasonable copies taken from another or, perhaps, several sources. The paper on which the paintings were executed is all of similar make and quality and is unfolded. All the paintings were executed at the Cape directly into the volume, as is indicated by the occurrence of Groups A and B randomly distributed through the volume, some on the same sheet and others even the same page. The volume was later properly bound in vellum. The paintings were nearly all numbered consecutively giving a series of numbers relevant only to BRI.

In BFC the Group A paintings are of poorer quality with sometimes fewer details depicted, they have altered unnatural proportions and were painted with a poorer quality water-colour paint. They all bear a number which corresponds to that in BRI, but are randomly arranged at the beginning of BFC. These paintings are undoubtedly copies of some of the Group A paintings in BRI, and are done on unfolded paper. The Group B paintings of which there are many more than in BRI, are likewise copies taken from a similar source as BRI. These are all done on folded paper which indicates that the copying was done at the Cape. The Group A and B paintings were copied separately on several different types of paper and then bound into a volume as late as 1724, with Group A paintings first and Group B's second. At this stage the pages or folios, not the paintings, must have been numbered consecutively.

The volumes, OXF and LD, are both sets of inferior copies with their numbering related to the folio numbers of BFC. This indicates that they must have been copied from BFC after 1724. The copies in LD were acquired at different times, the Group A paintings in 1779 and the Group B paintings in 1778, possibly from the estate of Seba according to Gunn & Du Plessis (1978).

Burman used some Group B paintings from which engravings were made and published in his *Rariorum Africanarum Plantarum* of 1738/39. He stated that they came from the collection of Simon van der Stel. This could indicate that all the Group B paintings were copies for BRI and BFC from one of the volumes of paintings owned by Van der Stel and now untraceable.

My conclusions from a comparison of BRI and BFC are that the BRI volume was painted first with Group A paintings painted from live plants and the Group B paintings copied at the Cape from Van der Stel's collection of paintings. They were then

number consecutively. The same artist, or perhaps another one, must have copied some of the BRI Group A paintings for Jakob Breyné, and yet another artist copied the Group B paintings for Breyné possibly from the same collection of Van der Stel. These paintings were eventually bound in 1724 and the pages numbered. The other two florilegia, OXF and LD must then have been copied from BFC.

The main questions that remain are—who were the artists and when was the first florilegium painted? The first question will probably remain as a point for speculation and remain unanswered for ever, as none of the artists active at the Cape in its early days ever signed a copy of his work. When the BRI florilegium was executed can be roughly deduced from certain facts. Jakob Breyné must have acquired his collection of paintings before he died in 1697. Thus for BFC Group A paintings to have been copied from BRI, BRI must have been in existence before 1697. As Breyné did not use any of the BFC paintings to illustrate the Cape plants depicted in his *Centuria* of 1678, it can be assumed that he acquired BFC after 1678. Gunn & Du Plessis (1978) mention several artists who were active at the Cape from the mid-1680's to the mid-1690's. It is reasonable to assume that BRI was painted during that period.

As Gunn & Codd (1980) state, botanists in South Africa must be grateful to the Brenthurst Press for publishing the complete BFC florilegium in colour. This statement I certainly endorse. Already available as reproductions are the superb facsimile edition in colour of TCD (Waterhouse, 1979), the sepia reproduction of IPA (Kennedy, 1967) and the rather poor black and white reproduction of the SAM paintings (Barnard, 1947), all of which give botanists an idea of the paintings in those volumes and something with which to make comparisons. As yet BRI, SAPL, OXF and LD have not been reproduced in any form to make them generally available to researchers. Gunn & Codd (1980) also point to the possibility of the existence of "undiscovered" manuscripts and volumes in libraries and archives in Europe, particularly in the rich collections at Leiden. It is hoped that this article will add to the increasing literature on early Cape florilegia and that at some time in the future new information will come to light that will solve some of the unanswered problems.

ACKNOWLEDGMENTS

Sincere thanks are due to the Brenthurst Library in Johannesburg for allowing examination of the original copy of the Breyné's *Flora Capensis*. This also applies to the Africana Museum in Johannesburg and to the South African Museum and South African Public Library in Cape Town for permitting examination of the original codices in their collections.

Useful discussions were held with Dr L. E. Codd and with Miss M. D. Gunn. Mrs A. Romanowski is thanked for her reproduction of the water-colour paintings.

UITTREKSEL

'n Aantal vroeë Kaapse florilegiums en kodekse bestaan in biblioteke in Europa en Suid-Afrika. Vier van hierdie florilegiums is naverwant en word in die Brenthurst-biblioteek, Johannesburg, die Navorsingsinstituut vir Plantkunde, Pretoria, die Bodley-biblioteek, Oxford en die Rijksherbarium, Leiden, gevind. Die florilegiums van die eerste twee word met mekaar vergelyk en in detail in hierdie artikel bespreek. Die artikel het ontstaan na aanleiding van 'n resensie van die Brenthurst-weergawe van Jakob en Johan Philipp Breyné se *Flora Capensis* wat vir hierdie uitgawe van *Bothalia* opgestel is. Voortspruitende uit die vergelyking word 'n nuwe verklaring vir die onderlinge verwantskappe en die oorsprong van die vier florilegiums voorgestel. Die sleutelvolume is die florilegium in die Navorsingsinstituut vir Plantkunde, Pretoria.

REFERENCES

- BARNARD, K. H., 1947. A description of the *Codex Witsenii* in the South African Museum. *Jl S. Afr. Bot.* 13: 1-52.
- BREYNÉ, J., 1678. *Exoticarum Aliarumque Minus Cognitarum Plantarum Centuria Prima*, etc. Danzig: Rhetius.
- BREYNÉ, J. & BREYNÉ, J. P., 1739. *Prodromi Fasciculi Rariorum Plantarum Primus et Secundus*, etc. Danzig.
- BURMAN, J., 1738-1739. *Rariorum Africanarum Plantarum*, etc. Amsterdam: H. Boussiere.
- CHURCHILL, W. A., 1935. *Watermarks in paper in Holland, England, France etc. in the XVII & XVIII centuries and their interconnections*. Amsterdam: Menno Hertzberger.
- EDWARDS, P., 1964. Some manuscripts relating to South African botany in the William Sherard Collection in the Bodleian Library at Oxford. *Jl S. Afr. Bot.* 30: 103-105.
- GUNN, M. D. & DU PLESSIS, E., 1978. Introduction and text in *The Flora Capensis of Jakob and Johan Philipp Breyné*. Johannesburg: Ad. Donker for the Brenthurst Press.
- GUNN, M. D. & CODD, L. E., 1980. *Botanical collectors in Southern Africa*. Cape Town: Balkema. In press.
- HEAWOOD, E., 1924. The use of watermarks in datin old maps and documents. *Geogr. J.* 63: 391-410.
- HEAWOOD, E., 1950. *Watermarks mainly of the 17th and 18th centuries*. Hilversum: The Paper Publications Society (Monumenta Chartae Papyraceae, No. 1).
- JAFFE, A., 1930. Zur Geschichte des Papieres und Seiner Wasserzeichen. *Pfalzische Heimatkunde* (26 Jahrgang), 1930, Heft 3/4: 3-29.
- JESSOP, J. P., 1965. A volume of early water-colours in the Library of the Botanical Research Institute, Pretoria. *Jl S. Afr. biol. Soc.* 6: 38-52.
- KENNEDY, R. F., 1967. *Catalogue of pictures in the Africana Museum*, Vol. 2, C307-738. Johannesburg.
- MACNAE, M. M. & DAVIDSON, L. E., 1969. The volume "*Icones Plantarum et Animalium*" in the Africana Museum, Johannesburg; and its relationship to the *Codex Witsenii* quoted by Jan Burman in his "*Decades Rariorum Africanarum Plantarum*". *Jl S. Afr. Bot.* 35: 65-81.
- OLIVER, E. G. H., 1980. Book review: *The Flora Capensis of Jakob and Johan Philipp Breyné*, ed. M. Gunn & E. du Plessis. *Bothalia* 13: 000.
- SMITH, A. H., 1952. *Notes on the Claudius water-colours in the Africana Museum*. Johannesburg: Africana Museum, Frank Connock Publication No. 1.
- TACHARD, G., 1686. *Voyage de Siam*, etc. Paris: Arnould Seneuze & Daniel Horthemels.
- TACHARD, G., 1689. *Second Voyage du Père Tachard*, etc. Paris: Daniel Horthemels.
- WATERHOUSE, G., 1932. *Simon van der Stel's Journal of his Expedition in Namaqualand, 1685-86*. Dublin: Longmans Green.
- WATERHOUSE, G., 1979. *Simon van der Stel's Journey to Namaqualand in 1685*. Cape Town & Pretoria: Human & Rousseau.

