

Reg 3161

8/14/30

UNITED STATES DEPARTMENT OF AGRICULTURE



INVENTORY No. 115



Washington, D. C.



Issued July 1935

PLANT MATERIAL INTRODUCED BY THE DIVISION OF PLANT EXPLORATION AND INTRODUCTION, BUREAU OF PLANT INDUSTRY, APRIL 1 TO JUNE 30, 1933 (Nos. 102378-103406)

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INTRODUCTORY STATEMENT

In this Inventory, no. 115, is recorded the plant material introduced by the Division of Plant Exploration and Introduction between April 1 and June 30, 1933, totaling 1,129 numbers (102378-103406).

The introduction of plants and scions of more than one hundred named varieties of apples, peaches, apricots, and pears from Italy is in continuation of the plan of the Division to bring into this country, for testing by Government specialists, as many as possible of the commercial deciduous-fruit varieties of Europe. Mention should be made also of a collection of grape scions presented by the Biologische Reichsanstalt at Naumburg, Germany (nos. 102491-102512); these will be tested in the far West and Southwest.

During March 1933, David Fairchild made a tour of several of the islands of the West Indies, stopping also for a brief visit to the Canal Zone. This trip was made possible through the continuing generosity of Allison V. Armour, whose yacht, the *Utowana*, carried the expedition. Dr. Fairchild's collections included cuttings and seeds of various tropical and subtropical fruits, seeds of a number of rare palms, and seeds or cuttings of numerous little-known ornamentals. Also worthy of mention is a special collection of palms (nos. 103155-103173) from Ceylon, presented by the Royal Botanic Garden at Peradeniya.

Joseph Rock, for several years an agricultural explorer for this Division, was traveling during this period through southwestern China for the University of California Botanic Garden. Through the courtesy of that institution, this Division received over 200 lots of seeds collected by Dr. Rock. These included several apparently new species of *Berberis*, *Cassiope*, *Cotoneaster*, *Iris*, *Lilium*, *Nomocharis*, *Prunus*, and *Rosa*.

Through the kindness of the Union of Soviet Socialist Republics, a special collection of tubers of South American species of *Solanum* (nos. 103028-103038) was received that will be of great value to pathologists working with potato diseases. By this same cooperation the Botanic Garden at Leningrad sent in 44 lots of seeds of little-known hardy perennials and bulbous plants adapted for growing in the colder parts of the United States.

The north-central Plains region of the United States should benefit from a shipment of seeds of very hardy vegetables grown between 40° and 45° north latitude in central Asia (nos. 102699-102727). Included in this lot of seed are onions, carrots, tomatoes, eggplants, and redpeppers.

The botanical determinations were made and the nomenclature determined by the late H. C. Skeels,¹ who had general supervision of this inventory.

B. Y. MORRISON,
Principal Horticulturist, in Charge.

DIVISION OF PLANT EXPLORATION AND INTRODUCTION,
Washington, D. C., February 15, 1935.

¹ Died Jan. 3, 1934.

INVENTORY²

102378. PHOENIX RECLINATA Jacq.
Phoenicaceae. Senegal date palm.

From Africa. Seeds collected at Zana, Algeria, and presented by the Royal Botanic Gardens, Kew, England. Received April 6, 1933.

Introduced for the use of Department specialists. Hausa name, *Kajinjira* or *Dabino bivi*. A date palm 20 to 30 feet high, native to tropical and subtropical parts of Africa. The reclinate, pinnate leaves are 6 to 9 feet long and have rigid green leaflets. The yellowish fruits, with edible sweetish pulp, are half an inch long.

For previous introduction see 102368.

102379 and 102380. SOLANUM TUBEROSUM L. Solanaceae. **Potato.**

From Brazil. Tubers presented by the Instituto Agronomico de Estado de São Paulo, Campinas. Received April 12, 1933.

102379. No. 21, *Ouro* (gold). Seeds from Clone no. 173. A variety introduced from Portugal many years ago.

102380. No. 16. Variety *Richter's Jubel*. Introduced from Germany in 1929; almost immune from common scab.

102381. SOLANUM TUBEROSUM L. Solanaceae. **Potato.**

From St. John's, Newfoundland. Tubers presented by H. A. Butler, secretary of agriculture, Department of Agriculture and Mines. Received April 14, 1933.

Arran Victory; a wart-resistant variety.

102382. STAGBUS FLEXUOSA (Mart.) Becc. (*Cocos flexuosa* Mart.). Phoenicaceae. **Palm.**

From Cuba. Seeds presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos. Received April 10, 1933.

102382—Continued.

A low Brazilian palm, 9 to 12 feet high, with lax terminal pinnate leaves, 3 to 6 feet long, having 70 to 90 pairs of rigid leaflets.

For previous introduction see 91875.

102383 to 102385. DANTHONIA spp. Poaceae. **Grass.**

From Australia. Seeds presented by A. B. Cashmore, Waite Agricultural Research Institute, University of Adelaide, Glen Osmond, South Australia. Received April 5, 1933.

A collection of selected strains that give the best results under South Australian conditions.

102383. DANTHONIA DUTTONIANA Cashmore.

Ga 65. A perennial grass, native to Australia, with stems 2 to 3 feet high, bearing broad leaves 6 to 9 inches long and open panicles 3 to 6 inches long. Said to be valuable both for hay and as a pasture grass.

102384. DANTHONIA RICHARDSONII Cashmore.

Ga 63. A perennial grass, native to Australia, with stems 2 to 3 feet high, lanceolate leaves about 1 foot long, and dense panicles 4 to 6 inches long. Said to be of value as a pasture grass.

102385. DANTHONIA SEMIANNULARIS (Labbill.) R. Br. **Wallaby grass.**

Ga 60. A perennial fine-leaved tussock grass, 1 to 2 feet high, which provides feed for the greater part of the year. It is said to be a good winter grass, will stand a great amount of grazing, and its palatability, both for cattle and sheep, is well known.

For previous introduction see 100671.

² It should be understood that the names of horticultural varieties of fruits, vegetables, cereals, and other plants used in this inventory are those under which the material was received when introduced by the Division of Plant Exploration and Introduction, and further, that the printing of such names here does not constitute their official publication and adoption in this country. As the different varieties are studied, their entrance into the American trade forecast, and the use of varietal names for them in American literature becomes necessary, the foreign varietal designations appearing in this inventory will be subject to change with a view to bringing the forms of the names into harmony with recognized horticultural nomenclature.

It is a well-known fact that botanical descriptions, both technical and economic, seldom mention the seeds at all and rarely describe them in such a way as to make possible identification from the seeds alone. Many of the unusual plants listed in these inventories are appearing in this country for the first time, and there are no seed samples or herbarium specimens with ripe seeds with which the new arrivals may be compared. The only identification possible is to see that the sample received resembles seeds of other species of the same genus or related genera. The responsibility for the identifications, therefore, must necessarily often rest with the person sending the material. If there is any question regarding the correctness of the identification of any plant received from this Division, herbarium specimens of leaves and flowers should be sent in so that definite identification can be made.

102386 to 102389.

From Mikicel, Lithuania. Scions presented by Frank Kokaska. Received April 12, 1933.

Received under the following varietal names.

102386. *MALUS SYLVESTRIS* Mill. (*Pyrus malus* L.). Malaceae. **Apple.**

No. 2. *Red Lomp*. A winter apple.

102387 to 102389. *PYRUS* spp. Malaceae. **Pear.**

102387. *PYRUS* sp.

Late Bartlett.

102388. *PYRUS* sp.

Late Sweet.

102389. *PYRUS* sp.

Red Cheek.

102390 to 102392. *VITIS VINIFERA* L. Vitaceae. **European grape.**

From the Netherlands. Scions presented by J. M. Riemans, Naaldwijk, through Prof. F. T. Bioletti, University of California, Berkeley, Calif. Received April 13, 1933.

Received under the following varietal names.

102390. *Early van der Laan.*

102391. *Emile Royal.*

102392. *Frankenthaler.*

102393 and 102394.

From Angola, Africa. Seeds presented by Dr. Leon Croizat, New York City, N. Y. Received April 12, 1933.

102393. *ELAEOPHORBIA DRUPIFERA* (Thonn.) Stapf. Euphorbiaceae.

A deciduous tree 40 to 50 feet high, with milky juice that may be a source of rubber. The young branches are fleshy and angled, becoming round and woody with age. The thick fleshy obovate leaves are 3 to 8 inches long, with stipular spines; the lowers are similar to those of the euphorbias, and the fleshy fruits vary in size from that of a cherry to a walnut. Native to tropical Africa.

102394. *EUPHORBIA DIDIEREIOIDES* M. Denis. Euphorbiaceae.

A low spiny succulent shrub, leafless below, with a terminal rosette of lanceolate-ovate leaves about 2 inches long. The spines are borne in threes, with the central one much longer than the rest. The small yellowish flowers are in dense terminal cymes. Native to Madagascar.

102395. *IPOMOEA BATATAS* (L.) Poir. Convolvulaceae. **Sweetpotato.**

From Japan. Tubers presented by the Agricultural Experiment Station, Nishigahara, Tokyo. Received April 17, 1933.

Shijunichi Imo, or 40-day sweetpotato.

Introduced for the use of Department specialists.

102396 to 102398.

From Cuba. Seeds presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, through F. G. Walsingham. Received April 13, 1933.

102396 to 102398—Continued.

102396. *CASEARIA ACULEATA* Jacq. Flacourtiaceae.

A spiny shrub or small tree native to the West Indies. The elliptic to obovate leaves, 1 to 3 inches long, are glabrous above and usually pubescent, with rather long stiff hairs beneath, and the inconspicuous flowers, in small umbels, are followed by globose capsules about one-fourth of an inch in diameter.

102397. *ELSOTA DIVERSIFOLIA* (L.) Blake (*Securidaca diversifolia* (L.) Blake). Polygalaceae.

A trailing or climbing shrub with thick shining oblong to ovate leaves 2 to 6 inches long and racemes of rose-colored flowers. It is native to Central America and the West Indies.

For previous introduction see 99633.

102398. *TABERBUA LEPIDOTA* (H. B. K.) Britton. Bignoniaceae.

A tropical tree, native to Cuba, with opposite compound leaves composed of five small oblong-lanceolate leathery leaflets, lepidote beneath, and axillary pink flowers about 2 inches long.

102399. *AGROPYRON CRISTATUM* (L.) Gaertn. Poaceae. **Wheatgrass.**

From Canada. Seeds presented by L. E. Kirk, Dominion agrostologist, Division of Forage Plants, Central Experimental Farm, Ottawa, Ontario. Received April 15, 1933.

Fairway. A strain of crested wheatgrass which has proved very satisfactory for lawns under dry-land conditions. It is also a good pasture strain. Practically all of the plants spread more or less by underground stems and some are decidedly creeping.

102400. *PISTACIA VERA* L. Anacardiaceae. **Pistache.**

From Turkey. Scions presented by H. T. Pence, American Mission, Gaziantep. Received April 3, 1933.

102401 to 102453.

From Italy. Plants purchased from Martino Bianchi, Pistoia. Received April 4, 1933.

Received under the following varietal names.

102401 to 102406. *AMYGDALUS* sp. Amygdalaceae.

102401 to 102405. *AMYGDALUS PERSICA* L. **Peach.**

102401. *D'Italia grossissima.*

102402. *Gialla di Breganze.*

102403. *Grossa Montagna.*

102404. *Moscattella gialla spicca.*

102405. *Tondona Presidente.*

102406. *AMYGDALUS PERSICA NECTARINA* Ait. **Nectarine.**

Cardinale.

102407 to 102429. *MALUS SYLVESTRIS* Mill. (*Pyrus malus* L.). Malaceae. **Apple.**

102407. *Annurca.*

102408. *Borda.*

102409. *Calvilla bianca d'inverno.*

102401 to 102453—Continued.

102410. *Calvilia di S. Salvatore.*102411. *Calvilia rossa d'estate.*102412. *Calvilia rossa d'inverno.*102413. *Carla.*102414. *Campanino.*102415. *Decio.*102416. *Durello.*102417. *Francesca.*102418. *Gelata.*102419. *Hohenzollern.*102420. *Isabella Luizet.*102421. *Jeanne Hardy.*102422. *Korobowka.*102423. *La Paia.*102424. *Lazzeruola.*102425. *Mantovano.*102426. *Renetta grigia Tirolese.*102427. *Rosa Gentile.*102428. *Rosmarina Bianca.*102429. *S. Giovanni.*102430 to 102438. PRUNUS ARMENIACA L.
Amygdalaceae. **Apricot.**102430. *Acme ou Sense.*102431. *Bella di S. giuliano.*102432. *Fertile di Chatanay.*102433. *Golden Dust.*102434. *Luizet.*102435. *Precoce di Montplaisir.*102436. *Precoce di Toscana.*102437. *Precoce di Tunisi.*102438. *Souvenir d'Anto.*102439 to 102453. PYRUS spp. Malaceae.
Pear.102439. *Andre Desporters.*102440. *Arthur Chevreau.*102441. *Buonocristiana d'inverno.*102442. *Butirra d'Angleterre.*102443. *Butirra senza senti.*102444. *Centodoppia (Del Duca).*102445. *Decan d'Alencon.*102446. *Duca di Pistoia.*102447. *La Madernassa.*102448. *Precoce di Cassano.*102449. *Re Carlo di Wurtemberg.*102450. *Rene Yaucel.*102451. *Santa Clause.*102452. *S. Germano d'inverno.*102453. *Spina.*102454. ABELIA FLORIBUNDA (Mart. and Gal.) Decaisne. Caprifoliaceae.
Mexican abelia.

From England. Plants presented by Stevenson R. Clarke, Borde Hill, Haywards Heath, Sussex. Received April 5, 1933.

102455. GARCINIA MESTONI F. M. Bailey.
Clusiaceae.

From Australia. Seeds presented by J. M. Newman, at the request of C. T. White, Government botanist, Queensland. Received April 4, 1933.

An erect slender graceful tree 20 feet or more in height, with drooping branches and glossy dark-green leaves. The roundish fruits, 2 to 3 inches in diameter, are of a bright olive green, with very juicy pulp of a pleasant acid flavor. The tree grows wild in the Bellenden Ker Hills at about 2,000 feet altitude.

102456 and 102457. MANGIFERA INDICA L. Anacardiaceae. **Mango.**

From the West Indies. Budwood and plants collected by David Fairchild, with the 1933 Allison V. Armour expedition. Received April 8, 1933.

102456. *Bombay mango.* No. 3052. From Kingston, Jamaica, March 11, 1933. This is the most prolific of all the East Indian mangoes that have been tested in Jamaica. It is a small fiberless sweet mango with a faint red flush, very much like the *Pairi*.

For previous introduction see 102269.

102457. *Sugar mango.* No. 3064. From Old Providence Island, March 14, 1933. This is an interesting form with very small sweet fruits of which the great majority are seedless or at least with very thin rudiments of seeds. The fruits are borne in clusters of 10 to 12, like grapes. Curiously enough, once in a while this variety produces a viable seed and this reproduces the variety.102458 and 102459. AMYGDALUS COMMUNIS L. Amygdalaceae. **Almond.**

From Italy. Seeds presented by Dr. F. Silvestri, director of the R. Laboratorio di Entomologia, Agrario R. Instituto Superiore Agrario, Portici. Received April 8, 1933.

Received under the following varietal names.

102458. *Nocellara.*102459. *Tricala.*

102460 to 102469.

From the West Indies and the Canal Zone. Material collected by David Fairchild, with the 1933 Allison V. Armour expedition. Received April 4, 1933.

102460. CITRUS GRANDIS (L.) Osbeck. (*C. decumana* Murr.). Rutaceae.
Grapefruit.

No. 3037. From the market at Port-au-Prince, Haiti, March 3, 1933. A pear-shaped fruit of good quality, with juicy, rather dark-colored aromatic flesh.

Nos. 102461 to 102468 were collected in the Canal Zone.

102461. KAEMPFERIA ROTUNDA L. Ziniberaceae.

No. 3088. *Resurrection Lily.* Root-stalks presented by Mr. Hunter, Ancon, February 3, 1933. A stemless tuberous plant allied to the ginger (*Zinziber officinale*). In the Canal Zone the showy violet-purple flowers, in general appearance resembling the crocus, appear in March. Later the very decorative green

102460 to 102469—Continued.

and purple leaves appear. These are about a foot long and 3 to 4 inches wide.

102462. *PASSIFLORA VITIFOLIA* H. B. K. Passifloraceae.

No. 3087. Cuttings collected near Fort Sherman, March 25, 1933. A strong-growing woody climber with deeply three-lobed heart-shaped leaves and large scarlet flowers about 5 inches across. The vine is reported to be immune from insects and nematodes.

102463 to 102467. *PHILODENDRON* spp. Araceae.102463. *PHILODENDRON* sp.

No. 3079. From Ancon, March 23, 1933. Cuttings of a handsome species, with dark-green elliptical leaves and a graceful habit of growth.

102464. *PHILODENDRON* sp.

No. 3080. From Barro Colorado Island, March 23, 1933. Cuttings of a rank climbing species of loose growth, with small very dark-green leaves that have broad petioles.

102465. *PHILODENDRON* sp.

No. 3081. From the Armour trail on Barro Colorado Island, March 23, 1933. A species with handsome immense dark-green leaves on long petioles.

102466. *PHILODENDRON* sp.

No. 3102. Cuttings collected in the Experiment Garden, Summit, March 23, 1933. A very pretty species with beautiful light-green, finely parted leaves.

102467. *PHILODENDRON* sp.

No. 3105. From the Experiment Garden, Summit, March 23, 1933. Cuttings of an epiphytic species with large dark-green cordate leaves. It is native to the Canal Zone.

102468. (Undetermined.)

No. 4. Cuttings of an aroid collected on Barro Colorado Island, March 23, 1933.

102469. *IPOMOEA HEPTAPHYLLA* (Rottl. and Willd.) Voight. Convolvulaceae.

No. 3013. From Crooked Island, Bahamas, February 2, 1933. Roots of a very handsome, free flowering, twining perennial, with fleshy, deep-pink flowers.

102470 to 102490.

From France. Seeds presented by Vilmorin-Andrieux & Cie., Verrieres-le-Buisson (Seine et Oise). Received April 5, 1933.

102470. *BETULA MEDWEDIEWII* Regel. Betulaceae. Birch.

A tall tree native to southeastern Europe. The ovate to obovate, doubly serrate leaves, 3 to 6 inches long and nearly as broad, are dark green above and light green beneath, with the 8 to 11 pairs of veins impressed on the upper surface.

102471. *BETULA TRISTIS* Wormsk. Betulaceae. Birch.

A shrub 3 to 12 feet high, with broadly ovate or elliptic acuminate leaves about 2 inches long. Native to northeastern Asia.

102470 to 102490—Continued.

102472. *CALLICARPA* sp. Verbenaceae. No. 2301.102473. *CALLICARPA* sp. Verbenaceae. No. 5511.102474 to 102490. *COTONEASTER* spp. Malaceae.102474. *COTONEASTER RUGOSA LATIFOLIA* Hort.

A name for which a place of publication and a description have not been found.

102475. *COTONEASTER MELANOCARPA LAXIFLORA* (Jacq.) C. Schneid.

A form with leaves larger than the type and pendulous clusters of pink flowers and black fruits.

102476. *COTONEASTER MICROPHYLLA THYMIFOLIA* (Loud.) Koehne. Thyme rockspray.

A variety that differs from the type in being generally smaller throughout, with narrowly oblong-obovate leaves and berries one-fifth of an inch in diameter. Native to the Himalayas.

For previous introduction see 102203.

102477. *COTONEASTER MULTIFLORA* Bunge. Malaceae.

A deciduous shrub about 6 feet high, with slender arching purple branches, native to western China. The broadly ovate leaves are 1 to 2 inches long, and the many-flowered clusters of small white flowers are followed by subglobose to ovoid red fruits one-third of an inch in diameter.

102478. *COTONEASTER MYRTIFOLIA* Hort.

A name for which a place of publication and a description have not been found.

102479. *COTONEASTER UNIFLORA* Bunge.

A dwarf deciduous shrub, closely related to *C. integerrima*, 2 to 3 feet high and native to Siberia. The thin, broadly oval to obovate leaves, less than 1 inch long, are smooth above and downy beneath when young. The single, usually solitary, white flowers are followed by globose red fruits.

102480. *COTONEASTER WHEELERI* Hort.

A name for which a place of publication and a description have not been found.

102481. *COTONEASTER* sp. Farrer no. 404.102482. *COTONEASTER* sp. C. Schneider no. 719.102483. *COTONEASTER* sp. No. 2005.102484. *COTONEASTER* sp. No. 2007.102485. *COTONEASTER* sp. No. 2061.102486. *COTONEASTER* sp. No. 2119.

102470 to 102490—Continued.

102487. COTONEASTER sp.

No. 3737.

102488. COTONEASTER sp.

M. V. no. 4414.

102489. COTONEASTER sp.

M. V. no. 4694.

102490. COTONEASTER sp.

No. 7087.

102491 to 102512. VITIS spp. Vitaceae.
Grape.

From Germany. Cuttings presented by Dr. C. Börner, Biologische Reichsanstalt, Zweigstelle, Naumburg, Saale. Received April 7, 1933.

A collection of grape cuttings introduced for the use of Department specialists.

102491. VITIS sp.	102502. VITIS sp.
102492. VITIS sp.	102503. VITIS sp.
102493. VITIS sp.	102504. VITIS sp.
102494. VITIS sp.	102505. VITIS sp.
102495. VITIS sp.	102506. VITIS sp.
102496. VITIS sp.	102507. VITIS sp.
102497. VITIS sp.	102508. VITIS sp.
102498. VITIS sp.	102509. VITIS sp.
102499. VITIS sp.	102510. VITIS sp.
102500. VITIS sp.	102511. VITIS sp.
102501. VITIS sp.	102512. VITIS sp.

102513 to 102585.

From Italy. Plants and scions purchased from G. Giannini, Stabilimento d'Orticoltura, Pistoia. Received April 8, 1933.

Received under the following varietal names.

102513. <i>Bella di Pistoia</i> .	102535. AMYGDALUS PERSICA L. Amygdalaceae. Peach.
102514. <i>Bella di Roma</i> .	
102515. <i>Bella di Vitry</i> .	
102516. <i>Bonouvrier</i> .	
102517. <i>Bonvicini</i> .	
102518. <i>Buco incavato</i> .	
102519. <i>Burrone di Rosano</i> .	
102520. <i>Della China</i> .	
102521. <i>Giallona di Papigno</i> .	
102522. <i>Globe</i> .	
102523. <i>Grosse Mignonne</i> .	
102524. <i>Isonzo</i> .	
102525. <i>Lavarone</i> .	
102526. <i>Morellona di Firenze</i> .	
102527. <i>Poppa di Venere</i> .	
102528. <i>Principe di Piemonte</i> .	
102529. <i>Ricordo Tug Giannani</i> .	
102530. <i>San' Anna</i> .	
102531. <i>Spagnola</i> .	
102532. <i>Tardiva di Brunel</i> .	

102513 to 102585—Continued.

102533. *Tardiva di Massalombarda*.102534. *Topazio*.102535. *Vittorio Emanuele III*.102536 to 102561. MALUS SYLVESTRIS
Mill. (*Pyrus malus* L.). Malaceae.
Apple.102536. *Api rose*.102537. *Bella di Pontoise*.102538. *Calvilla Granduca Federico di Baden*.102539. *Calvilla Saint Sauveur*.102540. *Carla*.102541. *Carla di Finale*.102542. *Carpendola grigia*.102543. *Chelmsford Wonder*.102544. *Drappo dorato*.102545. *Ferro*.102546. *Finocchina*.102547. *Flabewy*.102548. *Grugno di cane*.102549. *Lord Suffield*.102550. *Mora*.102551. *Principe Alberto*.102552. *Renetta d'Inghilterra*.102553. *Renetta grigia*.102554. *Renetta reale*.102555. *Rosa Romana*.102556. *Rosa tirolese*.102557. *Rosmarina bianca*.102558. *Rossa nobile*.102559. *Rotella*.102560. *Sugar Loaf Pippin*.102561. *Transparente de Croncels*.102562. PRUNUS ARMENIACA L. Amygda-
laceae. Apricot.

Commune.

102563 to 102585. PYRUS spp. Malaceae.
Pear.102563. *Abate Fétel*.102564. *Bianquet*.102565. *Buena Luigia d'Avranches*.102566. *Butirra d'Amanlis*.102567. *Oscia*.102568. *Curato*.102569. *Decana d'Alençon*.102570. *Decana di Luglio*.102571. *Decana d'Inverno*.102572. *Dottor Giulio Guyot*.102573. *La Francia*.102574. *Gentile bianca*.102575. *Giardina*.102576. *Imperatore Alessandro*.102577. *Lardona*.102578. *Margherita Marillat*.

102513 to 102585—Continued.

102579. *Martin Sec.*
 102580. *Monsallard.*
 102581. *Moscatello Piccolo.*
 102582. *Nobile.*
 102583. *Spadona d'Estate.*
 102584. *Succaramana.*
 102585. *Trionfo di Vienna.*

102586 to 102619.

From the West Indies and Central America. Seeds collected by David Fairchild, with the 1933 Allison V. Armour expedition. Received April 4, 1933.

102586. *AGAVE BREVISPIA* Trelease. Amaryllidaceae.

No. 3022. *Galatas* or *Croix des bouquets*. Point Decouverte, above Kenscoff, Haiti, March 2, 1933. A stemless but not cespitose agave, with dull dark-green, broadly lanceolate leaves 3 feet or more long having small dull-brown spines and narrowly triangular prickles. The golden-yellow flowers are in a dense cluster on a scape 12 feet high. Native to Hispaniola.

For previous introduction see 102342.

102587. *AGAVE INDAGATORUM* Trelease. Amaryllidaceae.

No. 3004. From near the sea, east of Cockburn, on Watlings, or San Salvador Island. A stemless agave with grayish lanceolate acute leaves about 7 feet long, terminated by a chestnut-brown spine half an inch long and flowers borne in a panicle on a scape about 25 feet high. Native to Watlings Island, Bahamas.

102588. *A N A N A S SATIVUS* Schult. f. Bromeliaceae. Pineapple.

No. 3083. Purchased in the market at Colon, Panama, March 27, 1933. A large, almost spherical fruit, with delicious aromatic flesh.

102589. *A N A N A S SATIVUS* Schult. f. Bromeliaceae. Pineapple.

No. 3089. March 28, 1933. *Ripley*. From Kingston, Jamaica. A pineapple with a delicious flavor.

102590 and 102591. *ARECA ALICAE* F. Muell. Phoenicaceae. Palm.

Seeds presented by J. E. Higgins, director, Canal Zone Experiment Gardens, Summit, March 23, 1933.

For previous introduction see 92192.

102590. No. 3085. An Australian cluster palm with graceful spineless trunks 9 feet or more in height and pinnate shining-green leaves 3 to 6 feet long. The handsome, scarlet oblong fruits, three-fourths of an inch long, make this one of the most attractive of all dooryard palms.

102591. No. 3090. A single-stemmed variety.

102592 and 102593. *ARRABIDAEA PACHYCALYX* Sprague. Bignoniaceae.

A large woody vine, native to Panama, with 2 or 3 entire leaflets covered beneath with dense minute white tomentum. The pink or purple flowers, in large terminal or axillary panicles, are followed by long linear pods.

102586 to 102619—Continued.

102592. No. 3095. Collected on the Armour trail, Barro Colorado Island, Panama, March 23, 1933.

102593. No. 3103. Presented by J. E. Higgins, director, Canal Zone Experiment Gardens, Summit, March 23, 1933.

102594 to 102596. *CAJANUS INDICUS* Spreng. Fabaceae. Pigeonpea.

102594. No. 3055. *No eye* pigeonpea.

102595. Collected March 14, 1933, on O'd Providence Island. Probably a Jamaican variety.

102596. No. 3056. Purchased in the market at Kingston, Jamaica, March 11, 1933. A variety with extra large pods.

102597. *CHRYSOPHYLLUM PANAMENSE* Pittier. Sapotaceae.

No. 3091. From Barro Colorado Island, Panama, March 23, 1933. A medium-sized tropical tree with a rounded crown, smooth gray bark, and brown pubescent branchlets. The elliptic-acuminate leaves, 6 to 8 inches long, are smooth and dark green above and gray and slightly pubescent beneath. The small yellow-green flowers, in axillary clusters, are followed by 1-seeded fruits about an inch long. Native to Panama.

102598. *COCCOLOBA MANZINELLENSIS* Beurl. Polygonaceae.

No. 3078. From Ancod, Panama, March 18, 1933. A handsome shade tree with dark-green leaves resembling oak leaves. The tree is inclined to form suckers and become a large bush.

102599 to 102601. *COCCOTHRINAX* sp. Phoenicaceae. Palm.102599. *COCCOTHRINAX* sp.

No. 3065. From Old Providence Island, March 14, 1933. A short graceful palm, 10 to 15 feet high, with large handsome leaves, silvery beneath, and having the characters of *Coccoltrinax argentea*. Found in a rocky situation, about 20 feet above the sea where it was exposed to the salt spray.

102600. *COCCOTHRINAX* sp.

No. 3108. From Georgetown, Grand Cayman Island.

102601. *COCCOTHRINAX* sp.

No. 3068. From Old Providence Island, March 14, 1933. Although this tree resembles no. 3065 [102599], it may be distinct, as the seeds are much smaller.

102602 and 102603. *CROTALARIA RETUSA* L. Fabaceae.

From New Providence Island, March 13 and 14, 1933.

For previous introduction see 98842.

102602. No. 3069.

102603. No. 3072.

102604. *DRACAENA* sp. Liliaceae.

No. 3038. Seeds presented by E. S. Downes, of Castleton Gardens, Jamaica, March 7, 1933. A tree 20 feet high and half as wide. The bright-orange fruits are in long pendent clusters.

For previous introduction see 102280.

102586 to 102619—Continued.

102605. ERAGROSTIS PROLIFERA (Swartz)
Steud. Poaceae. Grass.

No. 3076. From New Providence Island, March 15, 1933. A robust grass with stems 3 to 5 feet high in large clumps, native to tropical America on sandy beaches and in brackish marshes.

102606. BRYTHRINA BOEPPIGIANA (Walp.)
O. F. Cook (*B. micropteryx* Poepp.).
Fabaceae. Bucare.

No. 3071. *Mountain immortelle*. Presented March 10, 1933, by Mr. Goodman, of the Hope Gardens, Kingston, Jamaica. A handsome tender leguminous tree with red flowers. Native to Peru.

For previous introduction see 101011.

102607. GOSSEPIUM JAMAICENSE Macf.
Malvaceae. Cotton.

From Great Inagua, Bahamas, February 27, 1933. A tropical shrub 4 to 5 feet high with hairy branches, heart-shaped, three-lobed hairy leaves, pale-yellow flowers, and a four-valved capsule containing white cotton. It is native to Jamaica.

102608. INODES sp. Phoenicaceae. Palm.

No. 3073. From the Castleton Gardens, Jamaica, March 9, 1933.

102609. LECYTHESIS TURYANA Pittier.
Lecythidaceae.

No. 3107. From Ancon, Canal Zone, March 23, 1933. A tall straight tree 75 to 100 feet high, native to Panama. The elliptic-lanceolate coriaceous leaves, 8 to 12 inches long, are glossy above and paler and dull beneath, and the sulphur-yellow flowers are borne in dense terminal racemes 1 to 2 feet long.

102610. MISANTHECA TRIANDRA (Swartz)
Mez. Lauraceae.

No. 3067. From Old Providence Island, March 14, 1933. A West Indian tree up to 70 feet high, with alternate oblong shining dark-green leaves 4 inches long and panicles of white flowers which turn purple with age. The purple fruits with their red cups have the appearance of acorns and are very attractive.

102611. ODONTADENIA SPECIOSA Benth.
Apocynaceae.

No. 3092. From Barro Colorado Island, Canal Zone, March 23, 1933. A large woody tropical American vine with opposite elliptic leaves 5 to 10 inches long and large cymes of yellow flowers.

102612. PASSIFLORA LIGULARIS Juss.
Passifloraceae. Sweet granadilla.

No. 3061. From the market at Kingston, Jamaica, March 11, 1933. The light-yellow or green-yellow fruit is egg-shaped and has a rather thin rind. The seed is surrounded by an edible translucent arillus which is very refreshing.

102613. PASSIFLORA VITIFOLIA H. B. K.
Passifloraceae.

No. 3086. From the Armour trail, Barro Colorado Island, Canal Zone, March 23, 1933.

For previous introduction and description see 102462.

102614. PAULINIA sp. Sapindaceae.

No. 3098. From the Armour trail, Barro Colorado Island, Canal Zone,

102586 to 102619—Continued.

March 23, 1933. A strong growing vine with three-sided capsules containing shining black seeds, each with a brilliant white arillus.

102615. PINUS OCCIDENTALIS Swartz.
Pinaceae. Pine.

No. 3028. *Bois Chaudelle*, or *candlewood* tree. Collected at 6,000 feet altitude in Haiti, March 2, 1933. A native pine which resembles *Pinus caribaea*, but generally has five leaves in the fascicle instead of two. Formerly this pine covered the island above 2,500 feet altitude but is now found only in small patches. The tree is a rapid grower and is now being planted on the mountain sides to prevent soil erosion.

102616. SOLANUM sp. Solanaceae.

No. 3077. *Yanke*. From Great Inagua, Bahama Islands, February 26, 1933. A shrub with attractive foliage and small reddish fruits. Found in deep sandy land in a coconut plantation. The seeds have a bitter flavor and may contain an alkaloid.

102617. SPATHODEA NILOTICA Seem.
Bignoniaceae.

No. 3093. From the Experiment Gardens, Summit, Canal Zone, March 25, 1933. A shrubby tree up to 20 feet high, native to the northern part of tropical Africa. The leaves, which are opposite and composed of 9 to 15 leathery leaflets, are covered beneath with dense short hairs, and the scarlet flowers are in short terminal clusters. Both the leaves and flowers resemble those of *Spathodea campanulata*.

102618. TILMIA CARYOTAEPHOLIA (H. B. K.)
O. F. Cook (*Martinezia caryotaepholia*
H. B. K.). Phoenicaceae. Palm.

No. 3101. A beautiful slender straight-stemmed spiny-trunked palm up to 30 feet high with graceful pinnate leaves and bright orange-scarlet fruits borne in drooping racemes.

For previous introduction see 91784.

102619. TRIPLARIS SURINAMENSIS Cham.
Polygonaceae.

No. 3070. Presented March 10, 1933, by Mr. Goodman, curator, Hope Gardens, Kingston, Jamaica. A small tropical tree with ovate acuminate alternate leaves and small cream-white flowers in pilose spikes. The young stems are hollow and are usually occupied by ants. Native to Surinam.

102620. ELEOCHARIS TUBEROSA (Roxb.)
Schult. Cyperaceae. Waternut.

Tubers presented by Albert P. Ding, of Portland, Oreg. Received April 17, 1933.

A Chinese vegetable which grows very much in the same manner as wet-land rice. The corms or tuberous rhizomes are mostly eaten raw but are also sliced or shredded in soups and in meat and rice dishes. The plants, which are grown on muck or clay soil, need a hot summer to mature.

For previous introduction see 102339.

102621 to 102636.

From the West Indies and the Canal Zone. Material collected by David Fairchild, with the 1933 Allison V. Armour expedition. Received April 15, 1933.

102621 to 102636—Continued.

102621. AGAVE INDAGATORUM Trelease. Amaryllidaceae.

No. 3004. Cuttings collected near the seacoast, at Cockburn, on Watlings, or San Salvador, Island.

For previous introduction of seeds and description see 102587.

Nos. 102622 to 102628 were presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933.

102622. ANNONA BULLATA A. Rich. Annonaceae.

No. 3114. Budwood of a native Cuban tree which is related to the sugar-apple and appears to be unusually well adapted to dry soils. The aromatic leaves are used to season stews, and the small scaly ovoid-cordiform, scarcely edible fruits which mature in July are eaten by pigs.

102623. ANNONA RETICULATA L. Annonaceae. Custard-apple.

No. 3126. Budwood of an unusually large and attractive smooth custard-apple, with a reddish tinge and almost no bloom. It came originally from Santo Domingo.

102624. JOANNESIA PRINCEPS Vell. Euphorbiaceae.

No. 3116. Cuttings of a large tropical American tree with handsome 3- to 7-foliolate leaves about 4 inches long and coconutlike fruits about 5 inches in diameter, with four large oily seeds. It is related to the tung-oil tree (*Aleurites fordii*).

102625. ARISTOLOCHIA ARGYRONEURA Hort. Aristolochiaceae.

No. 3117. A plant of an interesting species with small wine-red flowers of an unusual shape, but with the fetid odor of the genus.

102626. CACTUS HARLOWII Britton and Rose. Cactaceae.

No. 3124. A cylindrical cactus which becomes about a foot high, with 12 narrow ribs, reddish spines less than half an inch long, and deep rose-red flowers embedded in the rather small cephalium. The deep-red fruits are one-half inch long. Native to Cuba.

102627. CASIMIROA EDULIS Llave. Rutaceae. White-sapote.

No. 3120. Cuttings from a seedling tree which bears unusually long, almost pointed fruits of good quality, with no suggestion of bitter flavor.

102628. GARCINIA TINCTORIA (DC.) W. F. Wight (*G. wanthochymus* Hook. f.). Clusiaceae.

No. 3121. Seeds of a tree of fairly rapid growth, with large opposite elliptic or oblong coriaceous leaves 6 to 10 inches long. The orange-yellow fruits, borne singly or in clusters of 3 to 5 in the axils of the leaves on mature wood, are round or tapering to an acute apex and are often over 2 inches in diameter. They are made up of 3 to 5 segments, each usually containing a large oblong seed. The ripe fruit has a distinctive, subacid flavor.

102621 to 102636—Continued.

102629. LIVISTONA HOOGENDORPII Andre. Palm. Phoenixaceae.

No. 3040. Seeds presented by Mr. Downes, Castleton Gardens, Jamaica, March 7, 1933. A handsome fan palm 60 feet high, with large coarse leaves which, when they fall, leave prominent leaf scars. The fruit is spherical and a deep blue.

102630. LUCUMA SERPENTARIA H. B. K. Sapotaceae.

No. 3141. Presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933. A medium-sized tree, 30 to 40 feet high, which is a Cuban relative to the canistel (*Lucuma nervosa*). The yellow olate fruit, about 3 inches in diameter, is very similar both in taste and texture to that of the canistel.

102631 to 102633. MANIHOT ESCULENTA Crantz (*M. utilisissima* Pohl.). Euphorbiaceae. Cassava.

Cuttings collected on the island of Grand Cayman, British West Indies, March 29, 1933.

102631. No. 3143. Silver Leaf. This variety is preferred for cooking because of its unusually tender flesh.

102632. No. 3144. White sweet. One of the standard varieties of cassava on Grand Cayman where the soil and climatic conditions are much like they are in Florida.

102633. No. 3145. Tampa. A variety, originally from Florida, which on the island of Grand Cayman is said to be a tremendous yielder, but not of such tender quality as the others.

102634. PHILODENDRON WARSZEWICZII Koch and Bouche. Araceae.

No. 3104. From Summit, Canal Zone, March 24, 1933. An aroid with large, much-divided leaves which somewhat resemble those of *Monstera* except that these leaves have no holes in them. It was found growing wild in the rain forests of Panama.

Nos. 102635 and 102636 were presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933.

102635. SALIX CHILENSIS Molina (*S. humboldtiana* Willd.). Salicaceae. Willow.

No. 3119. A graceful evergreen species of attractive appearance, the common willow of the Andean cordillera.

102636. SYNGONIUM AURITUM (L.) Schott. Araceae.

No. 3125. Cuttings of a handsome climbing aroid of loose growth, resembling *Syngonium polyphyllum*, but with smaller, darker green foliage.

102637 and 102638. PHOENIX RECLINATA Jacq. Phoenixaceae. Senegal date palm.

From Nigeria. Seeds collected by J. R. V. Smyth, Superintendent of Agriculture, and presented by O. T. Faulkner, Director, Department of Agriculture, Ibadan, Nigeria. Received April 17, 1933.

102637 and 102638—Continued.

Native name, *Okunkun* or *Okun*. Introduced for the use of Department specialists.

For previous introduction and description see 102378.

102637. Collected in a clump of palms 6½ miles from the Oyo rest house on the Oyo-Iseyin Road.

102638. Collected on a farm near the Oyo rest house.

102639 to 102642.

From the Union of Soviet Socialist Republics. Scions and trees presented by V. P. Alekseev, chief, foreign plant introduction, Institute of Plant Industry of the Lenin Academy of Agricultural Sciences, Leningrad. Received April 20, 1933.

102639. *MALUS SYLVESTRIS* Mill. (*Pyrus malus* L.). Malaceae. **Apple.**

Received as the *Circassian* apple. A semiwild variety of exceptional vigor and productivity, which should be of interest for fruit breeding work in the southern part of the United States.

102640 to 102642. *AMYGDALUS COMMUNIS* L. (*Prunus amygdalus* Stokes). Amygdalaceae. **Almond.**

102640. No. 62. 102642. No. 162.

102641. No. 96.

102643. *ZINNIA MULTIFLORA* L. Asteraceae.

From Argentina. Seeds collected by Walter Fischer, United States Tariff Commission, at Oncativo, Province of Cordoba. Received April 24, 1933.

A wild zinnia, found along fence rows and roadsides in the Province of Cordoba. The small flower heads are a light brick red.

102644 to 102687.

From the West Indies and the Canal Zone. Plants and seeds collected by David Fairchild, with the 1933 Allison V. Armour expedition. Received April 15, 1933.

102644. *ADENIUM OBESUM* (Forsk.) Roem. and Schult. Apocynaceae.

No. 3033. Presented by Mr. Goodman, curator, Hope Gardens, Kingston, Jamaica. A slow-growing shrub, not over 3 feet high, native to the dry regions of Africa and named after the desert port of Aden. The gorgeous deep-pink or white flowers are 3 inches across and remind one of enormous oleander blossoms.

Nos. 102645 and 102646 were collected on Grand Cayman, British West Indies, March 29, 1933.

102645. *AECHMEA* sp. Bromeliaceae.

No. 3127. A species with very large leaves over 2 feet long and 4 to 5 inches wide. The light-green fruits are in large clusters.

102646. *AERANTHES* sp. Orchidaceae. **Orchid.**

No. 3149. An epiphytic orchid that forms strandlike roots and covers the bark of trees with its interesting growth. Its delicate white flowers, 1 to 2 inches across, are fragrant in the evening.

102647 to 102649. *AGAVE* spp. Amaryllidaceae.

102644 to 102687—Continued.

102647. *AGAVE ACKLINICOLA* Trelease.

No. 3012. From near Moss Harbor, Crooked Island, Bahamas, Feb uary 20, 1933. A stemless but not caespitose agave with dull-grayish, narrowly lanceolate leaves 6 to 7 feet long, terminated by a smooth glossy red-brown spine an inch long, graying with age. The inflorescence is unknown, but this agave is closely related to *Agave bahamana*. Native to the Bahamas.

102648. *AGAVE BREVISPIA* Trelease.

No. 3022. *Galatas*, or *Croix des bouquets*. From Point Decouverte, above Kenscoff, Haiti, March 2, 1933.

For previous introduction and description see 102586.

102649. *AGAVE MORRISII* Baker.

No. 3059. From Jamaica, British West Indies, March 11, 1933. A stemless agave, native to Jamaica, with a rosette of 20 to 30 spatulate leaves, 4 to 6 feet long. The end spine is an inch long, and the marginal prickles are dark brown. The much-branched inflorescence, 15 to 20 feet high, bears bright-yellow flowers 2 to 3 inches long.

For previous introduction see 102277.

102650. *ANANAS SATIVUS* Schult. f. Bromeliaceae. **Pineapple.**

No. 3074. Plants presented by Mr. Goodman, of the Hope Gardens, Kingston, Jamaica, March 10, 1933. In Jamaica this pineapple is known as the *Ripley*. It is a small to medium-sized, sugar-loaf pineapple with deep-yellow, very sweet flesh of fine texture. The eyes are rather deep, necessitating a good deal of waste in preparing the fruit for the table.

102651. *ASTROCARYUM STANDLEYANUM* Bailey. Phoenicaceae.

No. 3115. From Barro Colorado Island, Canal Zone, March 23, 1933. A tall slender handsome spiny palm with pinnate leaves, found in the dense rain forest. The orange-yellow fruits, 1½ inches by 1¼ inches, are rugose and mucronate and are covered with a thin fleshy fibrous juicy sweetish pulp. They are borne in long pendent clusters.

102652 to 102654. *BRASSAVOLA* spp. Orchidaceae. **Orchid.**

From San Andres Island, Colombia.

102652. *BRASSAVOLA NODOSA* (L.) Lindl.

An epiphytic orchid 8 to 12 inches high, native to tropical America. The thick fleshy half-cylindrical linear leaf is 6 to 8 inches long, and the large pale-green flowers with a white lip are 2 to 3 inches across and are borne in a raceme 1 foot long.

102653. *BRASSAVOLA* sp.

A form with large white fragrant flowers.

102654. *BRASSAVOLA* sp.

[Received without notes.]

Nos. 102655 and 102656 were collected near Salt Pond, Great Inagua, Bahama Islands, March 26, 1933.

102644 to 102687—Continued.

102655. *NEOMAMILLARIA* sp. Cactaceae.
No. 3017.

102656. *CEPHALOCERUS* MILLSP A U G H I I
Britton. Cactaceae.

No. 3018. A large cactus with branching stems, 6 to 20 feet high, sometimes 8 inches thick at the base of the trunk. It has 8 to 13 ribs, and a score of acicular brown-yellow spines, about 2 inches long, rise from each gray-brown areole. The rather stiff greenish flowers, white within and less than an inch long, are succeeded by small reddish globose fruits. Native to the Bahama Islands.

For previous introduction see 102349.

Nos. 102657 and 102658 were presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba.

102657. *CITRUS GRANDIS* (L.) Osbeck (*C. decumana* Muir.). Rutaceae.
Grapefruit.

No. 3113. *Harvard No. 1*. An extremely juicy, very sweet, medium-sized grapefruit with deep-yellow flesh, little rag, and tender follicles. A cross between the orange and the grapefruit.

102658. *CLERODENDRUM ANAFENSE* Britton and P. Wils. Verbenaceae.

No. 3137. A Cuban tree 30 feet high, with obovate coriaceous leaves 2 to 4 inches long and clusters of white flowers an inch long followed by brilliant blue fruits.

102659. *CRINUM* sp. Amaryllidaceae.

No. 3150. From Grand Cayman, Bahama Islands, March 29, 1933. Bulbs found in deep sandy soil; this may be a local variety.

102660. *CYRTOSPERMA SENEGALENSE* (Schott) Engler. Araceae.

No. 3122. Presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933. The giant aroid of the Cameroons, grown from seed sent by the Allison V. Armour expedition to West Africa in 1927. It sends up its square, 16-inch-long spathe on a spiny stem 10 feet high. The plant requires wet sandy soil and warm moist atmosphere.

For previous introduction see 99319.

102661. *DENDROBIUM PIERARDI* Roxb. Orchidaceae.
Orchid.

No. 3047. Presented by Mr. Goodman, curator, Hope Gardens, Kingston, Jamaica. An epiphytic herb with slender pendulous pseudobulbs 2 to 3 feet long, native to India. The rose-mauve flowers, 2 inches across and borne usually in pairs, have a pale primrose-yellow lip streaked with purple at the base.

102662. *DIOSCOREA BULBIFERA* L. Dioscoreaceae.
Airpotato.

No. 3032. From Port-au-Prince, Haiti. A tall climbing vine with cordate-ovate leaves, native to tropical Asia. The axillary tubers are often bitter, but in this variety they are bland in flavor and are used for food.

102644 to 102687—Continued.

102663. *DIOSCOREA TRIFIDA* L. f. Dioscoreaceae.
Yamplie.

No. 3045. From the market at Kingston, Jamaica. The yamplie, a high-quality species of yam, exists in several varieties, of which this one from Jamaica is one of the best known. The species is grown only with difficulty outside the Tropics.

Nos. 102664 and 102665 were presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933.

102664. *DRYMARIA CORDATA* (L.) Willd. Silenaceae.

No. 3123. A small creeping annual which may prove a valuable cover crop for shady areas. It has flat round leaves an inch or less wide and small white flowers in cymes. Native to the West Indies.

102665. *ESPADAEA AMOENA* A. Rich Solanaceae.

No. 3129. A tree, native to Cuba, very common along the seacoast. The black and yellow wood is very hard and durable, and the small fruits are bright yellow.

For previous introduction see 101025.

102666. *FLACOURTIA INERMIS* Roxb. Flacourtiaceae.

No. 3084. Fruits collected in the Experiment Garden, Summit, Canal Zone, from a tree which grew from seed collected by David Fairchild in Ceylon in 1926. The low-love tree of Ceylon has brilliant-red fruits, the size of small cherries, produced in immense quantities. They are very sour and are said to make excellent jelly or preserves.

102667. *HIPPEASTRUM* sp. Amaryllidaceae.

No. 3023. Wild plants collected in Haiti.

102668. *IPOMOEA HEPTAPHYLLA* (Rottl. and Willd.) Voigt. Convolvulaceae.

No. 3019. Tubers collected along a roadside in Great Inagua, Bahama Islands, February 26, 1933.

For previous introduction and description see 102469.

102669. *KOPSIA FRUTICOSA* (Ker) A. DC. Apocynaceae.

No. 3138. Seeds presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933. A large evergreen shrub, native to Burma, with elliptic leaves 4 to 8 inches long. The flowers, over an inch long and 2 inches across and borne in cymes, have pink corolla tubes with red mouths. The pyriform fruits, 1 inch long, are greenish purple.

For previous introduction see 101134.

102670. *MABA CRASSINERVIS* Urb. Diospyraceae.

No. 3005. From Watlings Island (San Salvador), January 1, 1933. A tropical American shrub 4 to 11 feet high, occasionally a small tree, with leathery obovate or broadly ovate leaves about 2 inches long and inconspicuous flowers in small racemes.

102644 to 102687—Continued.

102671. *PASSIFLORA PEDATA* L. Passifloraceae.

No. 3128. Presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933. A species with particularly attractive foliage and fruits that are dark green when ripe.

102672. *PHASEOLUS CALCARATUS* Roxb. Fabaceae. Rice bean.

No. 3028. A deep-brown bean purchased in the market at Port-au-Prince, Haiti, March 3, 1933.

102673. *PORTLANDIA GRANDIFLORA* L. Rubiaceae.

No. 3133. Presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933. A tropical shrub up to 15 feet high, native to the West Indies, with opposite elliptical leathery leaves and axillary funnel-shaped flowers 4 inches long marked with purple-red calyx stripes, but with a very beautiful cream-colored corolla.

For previous introduction see 97577.

102674. *PTEROCARPUS OFFICINALIS* Jacq. Fabaceae.

No. 3051. Collected in the Bath Botanic Garden, Jamaica, March 9, 1933. A glabrous tree up to 30 feet high, native to tropical America. The compound leaves are made up of 5 to 9 elliptical-lanceolate shining leaflets 4 to 8 inches long, and the small yellow flowers, in lax panicles, are followed by flat, very oblique veiny pods nearly 2 inches across.

102675 to 102677. *SCHOMBURGKIA* spp. Orchidaceae. Orchid.

102675. *SCHOMBURGKIA THOMSONIANA* Reichenb. f.

No. 3057. Originally from Grand Cayman Island and presented by Edward J. Downes, of the Hope Gardens, Jamaica, March 10, 1933. A handsome West Indian orchid closely related to *Schomburgkia tibicinis*. The panicle has 15 flowers, the sepals are very pale yellow with a pale-mauve disk, and the light sulphur-yellow petals are lined and streaked with dark purple.

102676 and 102677. From Old Providence Island, March 14, 1933.

102676. *SCHOMBURGKIA* sp.

102677. *SCHOMBURGKIA* sp.

Nos. 102678 to 102681 were presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933.

102678. *SOLANUM PIERREANUM* Pail. and Bois. Solanaceae.

No. 3135. A small sweet pepper with bright scarlet fruits which are ornamental as well as edible.

102679 to 102681. *STIGMAPHYLLON* spp. Malpighiaceae.

102679. *STIGMAPHYLLON LEDIFOLIUM* (H. B. K.) Small.

No. 3140. A woody vine native to Cuba. The linear to suborbicular leathery leaves, 1 to 4 inches long, are lustrous above, and the axillary clus-

102644 to 102687—Continued.

ters of bright-yellow flowers are followed by 1 to 3 maplelike winged fruits nearly an inch long.

102680. *STIGMAPHYLLON SAGRAEANUM* Juss.

No. 3131. A woody vine, native to the West Indies, with rigid leathery linear to ovate leaves, coarsely reticulated beneath. The bright-yellow flowers are in axillary clusters, and the maplelike fruits are oblong with straight edges.

102681. *STIGMAPHYLLON PUBERUM* (Rich.) Juss.

No. 3134. A woody vine, native to the West Indies, with the branchlets covered with appressed brown hairs. The ovate-acuminate leaves, 2 inches long, are nearly glabrous above and appressed pubescent beneath. The petals of the bright-yellow flowers, an inch across, are fringed on the margin, and the maplelike fruits are more than an inch long.

102682. *STROPHANTHUS* sp. Apocynaceae.

No. 3058. From the Hope Gardens, Kingston, Jamaica, March 11, 1933. A strong climber with coarse leaves and large pink and white flowers with short acute petals.

102683. *SYNADENIUM GRANTII* Hook. f. Euphorbiaceae. African milk-bush.

No. 3130. Presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933. A stout shrub 8 to 10 feet high with pale-gray bark, native to tropical Africa. The slightly fleshy, oblanceolate to obovate leaves are 3 to 7 inches long, and the small dark-red flowers are borne in axillary cymes.

102684. *TILLANDSIA* sp. Bromeliaceae.

No. 3148. Collected near Georgetown, Grand Cayman, British West Indies, March 29, 1933. A small epiphytic tillandsia with attractive transverse markings. Found in dense brush.

102685. *TRIOPTERIS JAMAICENSIS* L. Malpighiaceae.

No. 3132. Presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, Cuba, April 2, 1933. A low-growing twining glabrous woody vine, native to the West Indies, with small violet to purple flowers.

102686. (Undetermined.)

No. 3142. From Old Providence Island, March 13, 1933. A fern found growing on the rocks in a very dry situation where it was exposed to the most intense sunlight. It had formed a perfect network of creeping rhizomes from which rose decorative leaves that were strikingly like the leaves of the *Ficus repens* (when old).

102687. (Undetermined.)

No. 3109. *Bull Rush* palm. From Grand Cayman, British West Indies, March 29, 1933. A beautiful fan palm with very dark-green leaves on long petioles and a tendency for the base of the leaflets to cross over at the suture. It is an ornamental palm which can stand long periods of drought.

**102688 to 102690. ORYZA SATIVA L. Poa-
ceae. Rice.**

From Surinam. Seeds presented by the Department of Agriculture, Paramaribo. Received April 17, 1933.

A collection of locally grown varieties introduced for the use of Department specialists.

102688. *Bruin Missi*.

102689. *Kretek*.

102690. *Witte Wanica*.

**102691. ONOBRUCHIS VULGARIS Hill (O.
vicifolia Scop.). Fabaceae. Sanfoin.**

From Hungary. Seeds presented by Rudolf Fleischmann, director of plant breeding, Kompolf. Received April 18, 1933.

Persica. A newly developed local variety introduced for the use of Department specialists.

102692 to 102694. CARICA PAPAYA L. Papayaceae. Papaya.

From the West Indies and Central America. Seeds collected by David Fairchild, with the 1933 Allison V. Armour expedition. Received April 15, 1933.

102692. No. 3100. From the Experiment Garden, Summit, Canal Zone. A small oblong papaya, about 6 inches long and 3 inches through, with deep golden-yellow flesh with the flavor of the *Solo* variety.

102693. No. 3146. Purchased in the market at Panama, Panama, March 29, 1933. An obovate medium-sized papaya with deep-red, almost salmon-colored flesh of superb quality.

102694. No. 3147. From Old Providence Island, March 21, 1933. A distinct strain, perhaps originated by isolation on the island. Its texture is mealy with a very sweet agreeable flavor, and although dead ripe, the surface of the fruit, when cut, exudes drops of papain which is not usual with ripe papayas.

102695. PISTACIA KHINJUK Stocks. Anacardiaceae.

From India. Seeds presented by the forest officer in Quetta, Baluchistan. Received April 21, 1933.

A smooth-barked shrub with unequally pinnate, velvety pubescent leaves consisting of 1 or 2 pairs of oblique broadly ovate or oblong leaflets, and small obovate-compressed nuts. Native to arid regions in southern and eastern Persia.

102696 and 102697. SOJA MAX (L.) Piper. Fabaceae. Soybean.

From the Union of Soviet Socialist Republics. Seeds presented by the Bureau of Introduction, Institute of Plant Industry, Leningrad, at the request of J. W. Pincus, New Brunswick, N. J. Received April 20, 1933.

Wild soybeans, from Tisnikhi, Far Eastern Republic.

102696. Catalog no. 1018; no. 115.

102697. Catalog no. 971; no. 116. Collected along the roadside.

102698. CUPANIA CUBENSIS Maza and Molinet. Sapindaceae.

From Cuba. Seeds presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, through F. G. Walsingham. Received April 18, 1933.

Guara común. An attractive shrub or small tree common in calcareous soil throughout Cuba. It has alternate compound leaves with pale-green leaflets and terminal panicles of small whitish flowers.

102699 to 102727.

From the Union of Soviet Socialist Republics. Seeds purchased through Dr. K. J. Pangalo, Bureau of Introduction, Institute of Plant Industry, Leningrad. Received April 25, 1933.

A collection of seeds grown between 40° and 45° latitude in Turkistan and the Caucasian regions. Introduced for testing in the north-central Plains region of the United States.

**102699 to 102703. ALLIUM CEPA L. Lilia-
ceae. Onion.**

102699. No. 122/2, from Turkmenistan.

102700. No. 123/1, from Samarkand.

102701. No. 124/1, from Tashkent.

102702. No. 124/3, from Samarkand.

102703. No. 124/5, from Ferghana.

102704 to 102706. AMYGDALUS PERSICA L. Amygdalaceae. Peach.

102704. No. 492. A peach with a sweet kernel; from the Ferghana Valley.

102705. No. 501. A peach with a striped kernel; from Khodjent Kostokos.

102706. No. 510. Variety *ferganensis*; a seedling peach from Mamangan, central Asia.

102707 to 102711. CAPSICUM ANNUUM L. Solanaceae. Common redpepper.

102707. No. 503. *Kalamtyr*, from Samarkand.

102708. No. 565. *Purgh*, from Asia Minor and Turkistan.

102709. No. 569. *Mestnyz*, from Asia Minor and Turkistan. A locally grown variety.

102710. No. 571. *Mestnyz*, from Asia Minor and Turkistan. A locally grown variety.

102711. No. 607. *Ghorkiy*, a bitter variety from Tashkent.

102712. DAUCUS CAROTA L. Apiaceae. Carrot.

No. 257. A violet carrot from Kanda-guar.

102713 to 102725. LYCOPERSICON ESCULENTUM Mill. Solanaceae. Tomato.

102713. No. 923. *Tshudorynka*, from Nikolaevsk, a village near Tashkent.

102714. No. 924. From Yanghabad, near Tashkent.

102715. No. 926. From the village of Nikolsk, near Tashkent.

102716. No. 927. From an Uzbek kitchen-garden near Tashkent.

102699 to 102727—Continued.

102717. No. 930. From an Uzbek kitchen-garden near Tashkent.

102718. No. 931. From the market in Ferghana.

102719. No. 932. From Yunus-Abad, near Tashkent.

102720. No. 942. From Andiksan.

102721. No. 975. From the market at Makhatsch-Kala, Daghestan.

102722. No. 976. From Makhatsch-Kala, Daghestan.

102723. No. 977. From Bujnaks, Daghestan.

102724. No. 978. From the market at Makhatsch-Kala, Daghestan.

102725. No. 979. From Bujnaks, Daghestan.

102726 and 102727. SOLANUM MELONGENA L. Solanaceae. Eggplant.

102726. No. 105. From Tashkent.

102727. No. 202. From central Asia.

102728 and 102729. CITRUS SINENSIS (L.) Osbeck. Rutaceae. Orange.

From Cuba. Scions presented by Thomas R. Towns, Holguin. Received April 27, 1933.

102728. Cuban navel orange.

102729. Harvard No. 2. A new navel orange introduced by the Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos.

102730 and 102731.

From Cuba. Seeds presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, through F. G. Walsingham. Received April 25, 1933.

102730. ASPARAGUS OFFICINALIS L. Con-vallariaceae. Garden asparagus.

Introduced for the use of Department specialists.

102731. TRIPLARIS CUMINGIANA Fisch. Polygonaceae.

An ornamental tropical tree about 20 feet high, generally of pyramidal habit, which prefers moist situations along the borders of lakes and streams. From February until the middle of April it is ablaze with red, produced by the bracts surrounding the capsules, and forms an exceedingly striking object in the landscape. The tree is native to Panama.

102732 to 102736. CLEMATIS spp. Ranunculaceae.

From New Zealand. Seeds presented by J. E. Spingarn, Amenia, N. Y. Received April 27, 1933.

102732. CLEMATIS AFOLIATA J. Buch.

A perennial with wiry leafless stems, native to New Zealand. The flowers are greenish white, nearly an inch across, and are borne in axillary fascicles of 2 to 5. On young plants the leaves are occasionally developed and consist of a persistent petiole and three minute long-stalked ovate to triangular leaflets. It

102732 to 102736—Continued.

is curious and distinct rather than beautiful.

For previous introduction see 101275.

102733. CLEMATIS AUSTRALIS × HEXASEPALA.

A natural hybrid between two white-flowered species, both of which have trifoliolate leaves and are native to New Zealand. In *C. australis* the leaflets are pinnate or pinnately lobed, while those of *C. hexasepala* are nearly entire.

102734. CLEMATIS FOETIDA Raoul.

A stout woody vine, often covering small trees, native to New Zealand. The slightly coriaceous trifoliolate leaves have ovate to cordate leaflets 1 to 2 inches long, and the small yellow flowers in large panicles are strongly odorous but are said not to be fetid.

For previous introduction see 101276.

102735. CLEMATIS HEXASEPALA DC.

A smaller and more slender vine than *C. indivisa*, with pale-green coriaceous trifoliolate leaves having ovate-oblong to ovate-cordate toothed leaflets 1 to 3 inches long. The numerous flowers, 1 to 2 inches across, have 6 to 8 white sepals. It is native to New Zealand.

For previous introduction see 101277.

102736. CLEMATIS HILARI Spreng.

A tropical climbing shrub with ternate or nearly ternate leaves 2 to 4 inches wide and blue-white fragrant flowers. It is native to southeastern Brazil.

102737. AMARANTHUS GANGETICUS L. Amaranthaceae. Ganges amaranth.

From California. Seeds presented by Ernest L. Lutz, Summit. Received April 28, 1933.

Hung Hua Tsai, or Red Sala. Seed of plants grown from seed brought from China by Mr. Lutz. An annual vegetable whose stems and leaves are prepared in the same manner as spinach and used for food in China.

102738 to 102741.

From Manchuria. Seeds purchased from Manshu Nosan Shokai, Inc., Dairen. Received April 19, 1933.

102738. ACER ARGUTUM Maxim. Aceraceae. Maple.

A small deciduous tree with erect branches and doubly serrate leaves 2 to 4 inches long. The flowers, produced in April before the leaves, are greenish yellow, and the keys are borne in hanging racemes. This tree is native to the mountain woods of Japan and makes an elegant appearance with its pale-green leaves during the summer and its purple-brown branches in the winter.

For previous introduction see 102160.

102739. ACER CISSIFOLIUM (Sieb. et Zucc.) Koch. Aceraceae. Maple.

A Japanese maple of compact rounded habit becoming 30 feet or more high, with leaves composed of three leaflets up to 4 inches long. The minute flowers are produced in May with the leaves, and the keys, about 1 inch long, occur in long

102738 to 102741—Continued.

racemes. In autumn the foliage turns red and yellow.

For previous introduction see 97497.

102740. BETULA JAPONICA MANDSHURICA (Regel) Winkl. Betulaceae. Birch.

A white-barked birch up to 80 feet high, with the leaves often broadly wedge-shaped at the base. Native to Hopeh Province, China.

For previous introduction see 93112.

102741. RHODODENDRON WEYRICHII Maxim. Ericaceae.

A deciduous shrub up to 15 feet high, native to Japan and China. The broadly ovate to rhombic leaves, 1 to 3 inches long, are in clusters of 2 or 3 at the tips of the branchlets and turn vinous purple in autumn. The rotate funnel-form red flowers, 1 to 3 inches across, appear before or with the leaves.

For previous introduction see 98479.

102742 to 102745.

From Brazil. Seeds presented by P. H. Rolfs, São Paulo. Received April 28, 1933.

102742. ACANTHOSTACHYS ANANASSOIDES Baker. Bromeliaceae.

A plant, native to Brazil, very much like the pineapple, with rigid linear leaves over 3 feet long and less than 1 inch broad above the dilated base. The flower head is borne on a stem 1 to 2 feet high, but the individual flowers are surrounded by separate bracts instead of being united as in the pineapple.

102743 to 102745. ANANAS spp. Bromeliaceae.

102743. ANANAS DUCKEI Hort.

A name for which a place of publication and a description have not been found.

102744. ANANAS MICROCEPHALUS Linden.

Ihira, the Guarany name for fiber. A dwarf pineapple, with small globose unpalatable fruits, which is considered to represent the original wild form. The quality of the fiber is unusually good, being very strong, lustrous, and fine, and the percentage of fiber in the leaves is very high.

102745. ANANAS sp.

102746 to 102748. AMYGDALUS ssp. Amygdalaceae.

From Australia. Trees purchased from G. F. Althofer, Dripstone, New South Wales. Received May 3, 1933.

102746. AMYGDALUS PERSICA L. Peach.

Ruby red. Medium to large-sized clingstone; one of Australia's best shipping peaches. Originated in Victoria, Australia, probably coming from the old Shanghai peach, but it is earlier, more highly colored, and a better shipper.

102747. AMYGDALUS PERSICA NECTARINA Ait. Nectarine.

Lee's Seedling.

102748. AMYGDALUS PERSICA NECTARINA Ait. Nectarine.

W. G. Fripp. A new nectarine of Australian origin; very large size;

102746 to 102748—Continued.

highly colored; flavor excellent; quality very good; heavy and regular bearer; season late.

102749 and 102750. HUMULUS LUPULUS L. Moraceae. Common hop.

From Austria. Roots presented by Josef Binder & Co., Neufelden, Austria. Received May 3, 1933.

102749. Auschaer Rote.

102750. Muhltrentler grüne.

102751. GOSSYPIUM HIRSUTUM L. Malvaceae. Upland cotton.

From the Union of Soviet Socialist Republics. Seeds presented by Dr. N. A. Malinovsky, Transcaucasian Cotton Research Institute, Ganja Station, Azerbaijan, Transcaucasia. Received May 1, 1933.

Selfed seeds from one plant.

102752 to 102787.

From India. Seeds presented by the curator of the Lloyd Botanic Garden, Darjeeling. Received May 3, 1933.

102752. ARDISIA MACROCARPA Wall. Myrsinaceae.

A shrub up to 4 feet high with narrowly ovate leaves, with crisped-crenate margins, bearing conspicuous glands in the crenations. The umbels of inconspicuous flowers are followed by dotted, bright-red berries one-half to one-third of an inch in diameter. Native to Sikhim and Nepal between 3,000 to 7,000 feet altitude.

For previous introduction see 93186.

102753. ARISAEMA GRIFFITHII Schott. Araceae.

A tuberous herb native to the temperate Himalayas in India from 7,000 to 12,000 feet altitude. The two leaves are divided into three rhombic-orbicular crenate lobes 6 to 10 inches long with faint yellow margins. The tube of the spathe, 2 to 3 inches long, is purple, ribbed with white, and the incurved limb, 5 to 8 inches broad, is divided into two dull-purple lobes reticulated green and having purple tails 3 inches long. The stout spadix has a tortuous linear purple tail 1 to 3 feet long.

102754. ARISAEMA TORTUOSUM (Wall.) Schott. Araceae.

A tuberous herb native to the subtropical and temperate Himalayas up to 8,000 feet altitude. The 2 or 3 leaves, on petioles 1 to 3 feet long, have 5 to 20 linear to ovate tailed leaflets 12 to 19 inches long. The flower stalk, 2 to 4 feet high, bears a pale-green or purple spathe 4 to 6 inches long with an incurved boat-shaped limb, and the spadix, which resembles a rattail, is first erect, then recurved, and again erect.

102755. CLEMATIS CONNATA DC. Ranunculaceae.

A large woody climbing vine native to the temperate Himalayas at altitudes between 4,000 and 10,000 feet. The leaves are made up of 3 to 7 broadly cordate leaflets 2 to 4 inches long, with coarsely serrate or three-lobed margins, and the

102752 to 102787—Continued.

small creamy tubular flowers are borne in large panicles.

102756. *CLEMATIS ZEYLANICA* (L.) Poir.
Ranunculaceae.

A climbing shrub, native to India and Ceylon, with trifoliate leaves having the terminal leaflet changed into a tendril. The solitary axillary flowers, about 1 inch across, have narrow green-white petals and yellow stamens.

For previous introduction see 93218.

102757. *ELSHOLTZIA POLYSTACHYA* Benth.
Menthaceae.

A bushy annual 3 to 4 feet high, native to India. The serrate lanceolate leaves are 3 to 6 inches long, and the small white tubular flowers are borne in fasciated spikes 4 to 10 inches long.

102758. *ERIOBOTRYA PETIOLATA* Hook. f.
Malacaceae.

A stout tree with leathery leaves 6 to 9 inches long and white flowers, one-half inch in diameter, appearing in panicles 3 to 6 inches long and broad. It is native to Sikkim, India, between 5,000 and 9,000 feet altitude.

102759. *EUPHORBIA SIKKIMENSIS* Boiss.
Euphorbiaceae.

A stout perennial 3 to 4 feet high, native to the Sikkim Himalayas at altitudes of 8,000 to 10,000 feet. The linear-lanceolate glabrous leaves are 2 to 4 inches long, and the small inconspicuous flowers are surrounded by broad ovate yellow bracts.

102760. *FLEMINGIA CONGESTA* Roxb.
Fabaceae.

An erect shrub 4 to 6 feet high, with angular silky branchlets, native to south-eastern Asia. The trifoliate leaves have broadly lanceolate leaflets 4 to 6 inches long, and the small flowers, covered by the shining pale-brown silky calyx, are in dense oblong racemes 2 inches long.

102761. *GAULTHERIA GRIFFITHIANA* Wight.
Ericaceae.

A stout shrub native to northern India up to an altitude of 9,000 feet. The leathery oblong long-pointed leaves are about 5 inches in length, and the broadly tubular yellow-green flowers, in racemes 2 to 3 inches long, are followed by brown, hairy fruits covered by the deep-blue enlarged calyx one-fifth of an inch in diameter.

102762. *GAULTHERIA NUMMULARIODES*
Don. Ericaceae.

A procumbent shrub covering banks with much-branched densely leafy stems, native to the Himalayas up to an altitude of 9,000 feet. The leathery ovate leaves are one-half inch long, and the reddish or nearly white tubular flowers, one-fifth of an inch long, are on densely bracted pedicels. The small fleshy blue-black fruits are one-sixth of an inch in diameter.

102763. *GERANIUM REFRACTUM* Edgew.
and Hook. f. Geraniaceae.

A glandular-hairy perennial herb 2 to 4 feet high, native to the Himalayas between 12,000 and 13,000 feet altitude. The palmately compound pubescent leaves, 3 inches wide, have 5 to 7 obtuse deeply lobed segments, and the white

102752 to 102787—Continued.

flowers, nearly 2 inches across, have reflexed petals and are borne in pairs on axillary or terminal peduncles.

102764. *GLOBBA RACEMOSA* J. E. Smith.
Ziniberaceae.

A tropical herbaceous perennial with erect stems 2 feet high from a creeping rhizome. The oblong-lanceolate leaves are 6 to 9 inches long, and the bright-yellow tubular flowers, 1 inch long, are borne in a narrow panicle a foot long. Native to India.

102765. *HYDRANGEA VESTITA* Wall. Hydrangeaceae.

A tall shrub up to 15 feet high, native to the temperate Himalayas from 8,000 to 10,000 feet. The branchlets are hairy, and the oblong to ovate serrate leaves, 4 to 9 inches long, are densely white tomentose beneath.

102766. *HYPERICUM HOOKERIANUM* Wight
and Arn. Hypericaceae.

St. Johnswort.

A compact shrub up to 6 feet high, with bright red-brown branches, evergreen leaves 1 to 4 inches long, and many-flowered corymbs of large golden-yellow flowers, each about 2 inches across. Native to the Himalayas.

102767. *HYPERICUM OBLONGIFOLIUM*
Choisy. Hypericaceae. St. Johnswort.

A shrub 3 to 6 feet high, native to the temperate slopes of the Himalayas at altitudes of 5,000 to 7,000 feet. The sessile ovate-lanceolate leaves are 1 to 3 inches long, and the nodding flowers, 2 inches across, are white on opening, turning light yellow with age.

For previous introduction see 99732.

102768. *NAGEIA NERIIFOLIA* (Don) Kuntze
(*Podocarpus neriifolia* Don). Taxaceae.

A glabrous evergreen tree, native to southeastern Asia. The straight or falcate leathery leaves are 4 to 8 inches long, and the solitary globose seeds, one-fourth of an inch in diameter, grow on fleshy oblong peduncles.

102769. *OSTODES PANICULATA* Blume. Euphorbiaceae.

A tree, native to India and Java, with pubescent branchlets and stout white-barked branches. The leathery long-pointed serrate ovate leaves are 8 to 12 inches long, and the inconspicuous flowers, in glabrous panicles a foot long, are followed by rough three-lobed woody capsules an inch long.

102770. *PELIGOSANTHES MACROPHYLLA*
Wall. Liliaceae.

A perennial herb with horizontal rootstocks, native to India at an altitude of 600 feet or less. The elliptic-lanceolate leaves, 12 to 18 inches long, are in a rosette from which rise the erect bracted scapes bearing racemes of purple-green broadly campanulate flowers.

102771. *PINUS ROXBURGHII* Sargent (P.
longifolia Roxb.). Pinaceae. Pina.

A tree, native to the lower Himalayas at altitudes of 1,500 to 7,500 feet, often over 100 feet high, with a round symmetrical head, but sometimes stunted and gnarled. The light-green pendulous leaves, in clusters of three, are 9 to 12

102752 to 102787—Continued.

inches long and persist for 3 or 4 years. The ovoid-conical cones, 4 to 7 inches long, have greatly thickened 4- to 6-lobed scales with a beak in the center. As a young plant, this pine is attractive for its long drooping pale-green foliage.

102772. POLYGALA ARILLATA Buch.-Ham.
Polygalaceae.

An erect shrub 4 to 8 feet high, native to southeastern Asia. The lanceolate to ovate leaves are 4 to 6 inches long, and the irregular flowers, one-half inch long, in drooping panicles, have red-purple sepals and yellow petals. The broadly reniform fleshy capsules are nearly an inch across.

102773. PRUNUS NAPAULENSIS (Seringe)
Steud. Amygdalaceae.

A small tree, native to the temperate Himalayas up to 10,000 feet altitude. The lanceolate to oblong-lanceolate, crenate-serrate leaves, 4 to 6 inches long, are glaucous beneath, and the white flowers, in dense racemes, are followed by globose-ovoid blue fruits nearly 1 inch long.

102774. PUERARIA PEDUNCULARIS (Benth.)
R. Grah. Fabaceae.

A vigorous shrub with slender twining branches clothed with short deflexed deciduous hairs. The membranous green leaflets are gray with a thick down. The reddish pea-shaped flowers, with a deep-purple-tipped keel, are in moderately close racemes 6 to 12 inches long. Native to the temperate regions of the Himalayas.

102775. PUERARIA PHASEOLOIDES (Roxb.)
Benth. Fabaceae.

A twining, semishrubby plant densely covered with brown hairs. The leaflets are green above and densely matted beneath with gray hairs, and the reddish flowers are borne in long-stemmed racemes. Native to tropical regions of the Himalayas.

102776. PYRULARIA EDULIS (Wall.) DC.
Santalaceae.

A medium-sized thorny tree native to the southern slopes of the Himalayas up to an altitude of 5,000 feet. The leaves are 3 to 7 inches long, rather fleshy, oblong with entire margins. The staminate flowers are in racemes, and the pistillate flowers are solitary, producing edible pear-shaped drupes 2 inches long.

For previous introduction see 94079.

102777 to 102780. RHODODENDRON spp.
Ericaceae.

102777. RHODODENDRON CAMELLIAEFLO-
RUM Hook. f.

An often epiphytic evergreen shrub 2 to 6 feet high with densely scaly branchlets, native to the Himalayas between 9,000 and 11,000 feet altitude. The narrowly oblong, obtusely mucronate leaves, 2 to 4 inches long, are glabrous and reticulate above and densely scaly beneath. The pink-tinged white flowers, an inch across, are fleshy, with a short broad tube and a wide-spreading limb.

102778. RHODODENDRON DALHOUSIAE
Hook. f.

A large epiphytic evergreen shrub native to the Sikkim Himalayas at

102752 to 102787—Continued.

altitudes of 6,000 to 8,000 feet. The oblanceolate to obovate, obtuse leaves, 2 to 6 inches long, are scaly and papillose beneath. The funnel-shaped fragrant white flowers, tinged with rose outside, are 3 to 4 inches long with five broad lobes.

102779. RHODODENDRON GRANDE Wight.

A tree up to 30 feet high, native to the Sikkim Himalayas between 8,000 and 10,000 feet altitude. The elliptic to oblanceolate leaves, 6 to 12 inches long, are shining deep green above and silvery white beneath. The mortar-shaped flowers, 2 to 3 inches long, are pale rose in the bud, opening creamy white with basal purple blotches, and are borne in large rounded clusters of 20 to 25.

102780. RHODODENDRON VACCINIODES
Hook. f.

A low shrub 1 to 3 feet high, with densely warty glandular branchlets, native to the Sikkim Himalayas between 6,000 and 12,000 feet altitude. The scattered spatulate emarginate leaves are less than 1 inch long, and the lilac-pink or pink-tinged white campanulate flowers are one-third of an inch long.

102781. ROSA MACROPHYLLA Lindl. Rosa-
ceae. **Bigleaf rose.**

A large, nearly thornless shrub, native to the temperate Himalayas up to 10,000 feet altitude. The compound leaves have 9 to 11 oblong to ovate leaflets 1 to 2 inches long, pubescent beneath, and the red flowers, 2 inches across, in clusters of 1 to 3, are followed by oblong-ovoid red fruits which are sometimes 2 inches long.

102782. TETRASTIGMA SERRULATUM
(Roxb.) Planch. (*Vitis capreolata*
Don.). Vitaceae.

A glabrous woody vine with slender wiry stems, native to India. The palmately compound leaves have 3 to 5 lanceolate to obovate bristly serrate leaflets 1 to 3 inches long, and the axillary or terminal cymes of small green flowers are followed by globose black fruits about one-fourth of an inch in diameter.

102783 to 102785. VACCINIUM spp. Vac-
ciniaceae.

102783. VACCINIUM DUNALIANUM Wight.

A large erect shrub with angular branchlets, native to India up to an altitude of 8,000 feet. The leathery oblong-lanceolate long-pointed leaves, 4 inches long, have entire recurved margins, and the small ovoid-conic flowers, in axillary racemes 3 inches long, are followed by globose berries one-sixth of an inch in diameter.

102784. VACCINIUM GLAUCO-ALBUM
Hook. f.

A shrub native to the Sikkim Himalayas between 9,000 and 10,000 feet altitude. The leathery oblong-ovate leaves, 2 to 3 inches long, are mucronate-serrate and are white beneath. The small pink-tinged white flowers, in racemes 3 inches long, are subtended by large white bracts which persist until the fruits are ripe.

102752 to 102787—Continued.

102785. *VACCINIUM NUMMULARIA* Hook. f. and Thoms.

A small rigid epiphytic shrub with densely hirsute pendent branches, native to the Himalayas at altitudes between 8,000 and 10,000 feet. The leathery glabrous broadly elliptic leaves, one-half inch long, have recurved margins, and the small tubular rosy flowers are borne in clustered racemes.

102786. *ZANTHOXYLUM ACANTHOPODIUM* DC. Rutaceae. Prickly-ash.

A shrub or small tree with vertically flattened prickles on the trunk and branches and dense foliage with a pungent aromatic odor. The small pale-red fruits are in loose panicles. Native to the warm valleys in the subtropical Himalayas at altitudes between 4,000 and 7,000 feet.

102787. *ZANTHOXYLUM ALATUM* Roxb. Rutaceae. Prickly-ash.

A shrub or small tree native to the subtropical Himalayas ascending to 6,000 feet. The compound leaves are made up of 5 to 11 lanceolate to ovate finely serrulate leaflets 1 to 5 inches long on a winged prickly rachis, and yellow-green flowers in small panicles are followed by warty red fruits which open and show the lustrous black seeds.

102788. *ZEA MAYS* L. Poaceae. Corn.

From Huancayo, Peru. Seeds presented by Paul G. Ledig, Huancayo Magnetic Observatory, Carnegie Institution of Washington, D. C. Received May 1, 1933.

Morada. A form with purple seeds.

102789 to 102814.

From the Union of South Africa. Seeds presented by Dr. R. H. Compton, director, National Botanic Gardens, Kirstenbosch, Newlands, Capetown. Received May 6, 1933.

102789. *ALOE HERBEROENSIS* Engler. Liliaceae.

A nearly stemless perennial, native to southern Africa, with fleshy ovate-lanceolate leaves, 10 to 14 inches long, whitish green with purple tips and spiny margins. The tubular red flowers, an inch long, are borne in a dense corymb on pendulous pedicels, at the top of a purple scape about 3 feet high. The variety *orpeniae*, the name under which these seeds were received, is said to be a more slender form.

102790. *GLORIOSA SIMPLEX* L. Melanthiaceae. Glorylily.

A vinelike perennial, native to Africa, which supports itself by the tendrill-bearing tips of the oblong-lanceolate leaves, 3 to 6 inches long. The yellow and red flowers, 1 to 3 inches across and borne in a lax terminal corymb, are on recurved pedicels, and the segments are reflexed and slightly undulate.

102791 to 102793. *INDIGOFERA* spp. Fabaceae.

102791. *INDIGOFERA CYLINDRICA* DC.

A bushy perennial with slender angular stems, native to southern Africa. The compound leaves are made up of 4 to 5 pairs of obovate emarginate leaflets one-half inch long, and the small

102789 to 102814—Continued.

pink-purple flowers are borne in dense many-flowered racemes.

102792. *INDIGOFERA FILIFOLIA* Thunb.

A bushy perennial with stems 3 to 6 feet high, native to southern Africa. Only young plants bear ordinary compound leaves, those on mature plants being reduced to filiform petioles 3 to 5 inches long. The purple flowers are borne in racemes longer than the petioles.

102793. *INDIGOFERA LANGEBERGENSIS* Bolus.

A small shrub, closely allied to *Indigofera frutescens*, and perhaps only a stunted form of that species. It is about 10 inches high, with leathery oval-obovate leaflets and lax many-flowered racemes of purple flowers. Native to Cape Province.

102794. *JASMINUM TORTUOSUM* Willd. Oleaceae. Jasmine.

A woody vine with angular twigs, native to southern Africa. The trifoliolate leaves have glabrous lanceolate leaflets, and the salver-shaped white flowers, 1 inch long, are borne in terminal clusters of 3 to 5.

102795 to 102813. *PROTEA* spp. Proteaceae.

Introduced for the use of Department specialists.

102795. *PROTEA MELLIFERA* Thunb.

102796. *PROTEA ACEROSA* R. Br.

102797. *PROTEA AMPLEXICAULIS* (Salisb.) R. Br.

102798. *PROTEA CEDROMONTANA* Schlechter.

102799. *PROTEA COMPACTA* R. Br.

102800. *PROTEA CYNAROIDES* L.

102801. *PROTEA GRANDICEPS* Tratt.

102802. *PROTEA HUMIFLORA* Andrews.

102803. *PROTEA LATIFOLIA* R. Br.

102804. *PROTEA LONGIFLORA* Lam.

102805. *PROTEA LONGIFOLIA* Andrews.

102806. *PROTEA MARGINATA* Thunb.

102807. *PROTEA MUNDI* Klotzsch.

102808. *PROTEA NERIIFOLIA* R. Br.

102809. *PROTEA OBTUSIFOLIA* Buek.

102810. *PROTEA PULCHELLA* Andrews.

102811. *PROTEA ROUPELLIAE* Meisn.

102812. *PROTEA SCOLYMOCEPHALA* (L.) Reichard.

102813. *PROTEA SUSANNAE* Phillips.

102814. *SESAMUM CAPENSE* Burm. f. Pedaliaceae.

An erect simple or branched herbaceous plant up to 6 feet high, native to southern Africa. The leaves are palmately divided into 3 to 5 ovate to linear leaflets 1 to 3 inches long, and the tubular violet flowers are 1 inch long with spreading lobes about 1 inch wide. The plant can thrive in very dry situations where the annual rainfall is only 4 inches.

102815. ROLLINIA ORTHOPETALA A. DC.
Annonaceae.

From Para, Brazil. Seeds collected by G. Schultz, Miami, Fla., and presented through David Fairchild. Received May 3, 1933.

A shrub or small tree native to tropical America. The fleshy fruits resemble those of *Annona*; the seeds are enveloped in a large amount of pulp which is of custard-like consistency and of a very agreeable acidulous taste. The plant thrives in localities which are often flooded for some time during the rainy season.

102816 to 102818.

From India. Seeds from the Lloyd Botanic Garden, Darjeeling, presented through George L. Slate, New York State Agricultural Experiment Station, Geneva, N. Y. Received May 3, 1933.

102816. ABIES SPECTABILIS Lambert (A. webbiana Lindl.). Pinaceae.
Himalayan fr.

A tree sometimes 150 feet high, native to the Himalayas at altitudes between 7,000 and 13,000 feet. The dark-green leaves are arranged in two opposite series so as to leave a V-shaped opening along the top; the individual leaves are 1 to 2 inches long. The cones, about 5 inches long, are violet purple at first, later becoming brown.

For previous introduction see 99707.

102817. MUCUNA IMBRICATA DC. Fabaceae.

A woody climber, native to the eastern Himalayas up to 4,000 feet altitude. The membranous trifoliate leaves have oblong pointed leaflets 6 inches long, and the dull-purple flowers, 2 inches long, are in lax racemes 6 to 12 inches long. The oblong pods, 4 to 6 inches long, are clothed with deciduous irritating bristles.

102818. MUCUNA MACROCARPA Wall. Fabaceae.

A woody climber, native to Nepal and Sikkim at altitudes up to 6,000 feet. It has stiffish trifoliate leaves, purple flowers, and the torulose pods are over a foot long.

For previous introduction see 93215.

102819. SOPHORA GRIFFITHII Stocks. Fabaceae.

From Afghanistan. Seeds presented by J. E. Spingarn, Amenia, N. Y. Received May 5, 1933.

An attractive shrub with silvery compound leaves composed of 20 to 40 oval, silky-hairy leaflets, and terminal and lateral racemes of golden-yellow flowers that appear in the spring. It is native to Baluchistan.

102820 to 102827. CUCUMIS MELO L. Cucurbitaceae.
Melon.

From Sinkiang, China. Seeds presented by R. C. Schomburg, through E. A. Foley, agricultural attache, American Embassy, London. Received May 5, 1933.

A collection of cantaloup seeds from central Asia. The melons of that region are noted both for their size and their excellent flavor.

102828 to 102848.

From southwestern China and Tibet. Seeds collected by Dr. J. F. Rock, agricultural explorer, for the University of California Botanical Garden expedition. Received May 4, 1933.

102828 to 102838. LILIUM spp. Liliaceae.
Lily.

Nos. 102828 to 102836 were collected in Tsarung Province, southeastern Tibet.

102828. LILIUM GIGANTEUM Wall.
Giant lily.

No. 23566. Collected at 11,000 feet altitude in the forests on Mount Moting, east of Atuntze. A lily, native to the Himalayas between 5,000 and 10,000 feet altitude, with bulbs that grow close to the surface. The hollow stems are 6 to 9 feet high, and the handsome cordate leaves are shining dark green above and paler beneath. The large fragrant white flowers, often 12 in a raceme, are slightly greenish without, and the inner surface of the segments is tinged with deep purple.

For previous introduction see 102317.

102829. LILIUM sp.

No. 21933. Collected on Mount Kenichunpo, Salwin-Irrawaddy Divide, at 12,000 feet altitude. A plant 3 feet high with white flowers.

102830. LILIUM sp.

No. 21937. Collected on Mount Kenichunpo, Salwin-Irrawaddy Divide, in alpine meadows. The flowers are purplish red.

102831. LILIUM sp.

No. 22152. Collected on Mount Kenichunpo, north of Siktung, on the Upper Salwin River, in alpine meadows at 13,000 feet. The flowers are red.

102832. LILIUM TALIENSE Franch.

No. 22264. Collected in the forests of Solola, in alpine meadows at 12,000 feet altitude. A martagon lily with stout gray-green stems, 3 to 5 feet high, clothed with dense white scabrid pubescence, and linear to lanceolate leaves 2 to 4 inches long. The fragrant nodding flowers, 2 inches long, are in subverticillate clusters of 2 to 12 and vary in color from purple-spotted white to pink.

For previous introduction see 99902.

102833. LILIUM GIGANTEUM Wall.
Giant lily.

No. 22542. From the northern slopes of Mount Kenichunpo, at 12,500 feet altitude.

For previous introduction and description see 102828.

Nos. 102834 to 102836 were collected on Mount Kaakerbo.

102834. LILIUM WILLMOTTIAE Wilson.

No. 23475. Collected in pine forest at 10,000 feet altitude. Flowers orange-red, spotted with black.

For previous introduction see 69927.

102835. LILIUM TALIENSE Franch.

No. 23537. Collected on dry slopes in pine forest at 9,500 feet altitude.

For previous introduction and description see 102832.

102828 to 102848—Continued.

102836. *LILIUM TALIENSE* Franch.

No. 23613. From the western slopes, in alpine meadows at 12,000 feet altitude.

For previous introduction and description see 102832.

Nos. 102837 and 102838 were collected on Mount Kintzu, Labako, northwestern Yunnan, China.

102837. *LILIUM HYACINTHINUM* Wilson.

No. 25457. Collected at 10,000 feet altitude in fir forests. An alpine lily, native to western China between 10,000 and 12,000 feet altitude. The stout erect shining-green stems are 3 to 4 feet tall, the scattered oblong-lanceolate leaves are 6 to 8 inches long, and the slightly fragrant, funnel-shaped flowers, 1 to 2 inches long, are borne in racemes of 12 to 24 and vary in color from lavender-pink to rose-lilac.

For previous introduction see 99896.

102838. *NOMOCHARIS LOPHOPHORA* (Bur. and Franch.) Balf. f.

No. 25460. Found in alpine meadows at 13,000 feet altitude. A lily 6 to 12 inches high, with alternate ovate or lanceolate leaves 2 to 3 inches long and solitary yellow flowers about 2 inches long.

102839. *MAGNOLIA* sp. Magnoliaceae.

No. 22607. From the northern slopes of Mount Kenichunpo, north of Sikitung, on the Upper Salwin River, Tsarung Province, southeastern Tibet. A magnolia with immense leaves.

102840 to 102847. *NOMOCHARIS* spp. Liliaceae.

Nos. 102840 to 102843 were collected in Tsarung Province, southeastern Tibet.

102840. *NOMOCHARIS* sp.

No. 22176. From the northern slopes of Mount Kenichunpo, in alpine meadows at 12,500 feet altitude at the headwaters of the Eastern Irrawaddy. The white flowers are spotted with purple.

Nos. 102841 to 102843 were collected on Mount Tjonatong, Upper Salwin Divide.

102841. *NOMOCHARIS* sp.

No. 22309.

102842. *NOMOCHARIS* sp.

No. 22310.

102843. *NOMOCHARIS* sp.

No. 22311.

102844. *NOMOCHARIS* sp.

No. 23256. From Mount Fuchuan, west of the Mekong-Salwin Divide, northwestern Yunnan, China, at 13,000 feet altitude, in alpine meadows. The white flowers are spotted with purple.

Nos. 102845 and 102846 were collected in Tsarung, southeastern Tibet.

102845. *NOMOCHARIS* sp.

No. 23576. Collected on Mount Kaakerbo in alpine meadows at 12,500 feet altitude. Flowers, lavender pink.

102828 to 102848—Continued.

102846. *NOMOCHARIS* sp.

No. 23670. From west of Mount Kaakerbo in alpine meadows. The white flowers are speckled.

102847. *NOMOCHARIS* sp.

No. 25456. Collected on Mount Kintzu, Labako, northwestern Yunnan, China, near fir forests at 12,500 feet altitude. The flowers are pink.

102848. (Undetermined.)

No. 23584. Collected on Mount Kaakerbo, Tsarung, southeastern Tibet, at 12,500 feet altitude. The flowers are dark reddish purple.

102849 to 102858. *HUMULUS LUPULUS* L. Moraceae. Common hop.

From France. Roots presented by Prof. Etienne Foex, directeur de la Station Centrale de Pathologie Végétale, Versailles. Received May 8, 1933.

A collection of wilt-resistant French varieties, introduced for the use of specialists working on hop breeding.

102849. *Alsace* (Urbann).102850. *Burgunder* (Simon).102851. *Landopfen* (Simon).102852. *Sümling* (Salmon).102853. *Sämling* (Urbann).102854. *Spalt* (Urbann).102855. *Spalter* (Rohmer).102856. *Spalter* (Simon).102857. *Tige Blanche* (Jagger).102858. *Tige Verte* (Jagger).102859 to 102877. *GOSYPIUM* spp. Malvaceae. Cotton.

From Haiti. Seeds obtained by O. F. Cook. Received April 8, 1933.

Introduced for the use of Department specialists.

102859. Cotton-breeding no. 1035. A lintless variation from Port-au-Prince.

Nos. 102860 to 102877 are Cotton-breeding no. 1036.

102860. No. 16. 102869. No. 37.

102861. No. 18. 102870. No. 41.

102862. No. 19. 102871. No. 44.

102863. No. 21. 102872. No. 45.

102864. No. 22. 102873. No. 46.

102865. No. 27. 102874. No. 47.

102866. No. 28. 102875. No. 52.

102867. No. 30. 102876. No. 55.

102868. No. 35. 102877. No. 96.

102878. *CARICA CAULIFLORA* Jacq. Papayaceae.

From the Canal Zone. Seeds presented by J. E. Higgins, director, Experiment Garden, Summit. Received May 9, 1933.

Introduced for the use of Department specialists.

102879 to 102891.

From China. Seeds purchased through Peter Liu, Peiping. Received May 8, 1933.

From Hopeh Province, north of Peiping; introduced for the use of Department specialists.

102879. ALLIUM CEPA L. Liliaceae. Onion.

No. 9. *Ta Tsung.*

102880. BRASSICA sp. Brassicaceae.

No. 13.

102881 to 102883. CAPSICUM ANNUUM L. Solanaceae. Common redpepper.

102881. No. 4. Large persimmon pepper.

102882. No. 5. Chinese.

102883. No. 6. A Chinese pepper.

102884 to 102886. LYCOPERSICON ESCULENTUM Mill. Solanaceae. Tomato.

102884. No. 10.

102885. No. 11.

102886. No. 12.

102887 and 102888. PISUM SATIVUM L. Fabaceae. Pea.

102887. No. 7.

102888. No. 8.

102889 to 102891. SOLANUM MELONGENA L. Solanaceae. Eggplant.

102889. No. 1.

102890. No. 2.

102891. No. 3.

102892. PISTACIA MUTICA Fisch. and Mey. Anacardiaceae. Terebinth.

From Palestine. Seeds collected in Aïr Baiat, Safed District, Metulla region, and presented by A. Khazanoff, Haifa. Received May 8, 1933.

A deciduous tree up to 35 feet high with pinnate foliage. It is sometimes used as a stock for *Pistacia vera*. Native to the Mediterranean region.

For previous introduction see 99351.

102893 and 102894. GOSSYPIUM ARBOREUM L. Malvaceae. Cotton.

From India. Seeds presented by V. N. Ranganatha Rao, senior assistant botanist, Krishnalaya, Ulsoor Gate, Bangalore City, southern India, through T. H. Kearney, Bureau of Plant Industry. Received May 5, 1933.

102893. A form which resembles *Gossypium herbaceum*.

102894. A form which resembles the *Nahda* variety.

102895. CITRUS MEDICA L. Rutaceae. Citron.

From Italy. Plants purchased from Onofrio Bottaro & Figli, by Dr. Forzano, of the Diamond Citron Co., Los Angeles, Calif., and sent through Coert de Bois, American consul general, Naples. Received April 13, 1933.

Diamante citron, from Diamante, Province of Cosenza. A fine variety introduced for the use of Department specialists.

102896. CITRUS sp. Rutaceae.

From French Indo-China. Plants collected at the Station Agricole de Blao de Haut Donoi, Annam, and presented by M. Poilane, Institut des Recherches Agronomiques de l'Indochine, Division de Botanique. Received May 13, 1933.

A cultivated lemon with aromatic fruits, collected at 2,300 feet altitude.

102897. HUMULUS LUPULUS L. Moraceae. Common hop.

From Czechoslovakia. Roots presented by Dr. Ing. Ctibor Blatný, Institute of Phytopathology, Státní vyzkumné ústavy zemědělské Prague-Device, Sadova. Received May 16, 1933.

Early green hop from Duba.

102898 to 102901.

From Mexico. Seeds presented by Peter H. Heinz, Brownsville, Tex. Received May 13, 1933.

A collection of seeds purchased in a Mexican market.

102898 to 102900. CAPSICUM ANNUUM L. Solanaceae. Common redpepper.

102898. Ancho. A large aromatic mild pepper of good color; used to color chili.

102899. Mulato. A medium-sized pepper, mild but with a bitter flavor; used to flavor chili.

102900. Pasilla. A pepper 4 inches long with a mild flavor; used in chili.

102901. SESAMUM ORIENTALE L. Pedalaceae. Sesame.

Ajonjolí. Used in the manufacture of chili powder.

102902 to 102911.

From India. Seeds presented by the curator, Lloyd Botanic Garden, Darjeeling, through Ralph A. Fenton, Portland, Oreg. Received May 11, 1933.

102902. ARDISIA sp. Myrsinaceae.

The Ardisias are tropical or subtropical trees or shrubs, with thick evergreen leaves, cymes of white or rose-colored flowers, and, usually, red fruits the size of a pea.

102903. DAPHNE PAPHRACEA Wall. Thymelaeaceae.

A shrub up to 8 feet high, native to the temperate slopes of the Himalayas in India. The thinly coriaceous oblanceolate leaves are 2 to 4 inches long, and the fragrant cream-colored flowers, half an inch long, are in terminal heads.

For previous introduction see 94075.

102904. DAPHNE SUREBIL Smith and Cave. Thymelaeaceae.

An erect evergreen shrub 3 to 10 feet high, with alternate lanceolate or linear-lanceolate leathery leaves about 4 inches long and small whitish flowers half an inch long. Native to the eastern temperate Himalayas.

For previous introduction see 102313.

102905. ILEX HOOKERI King. Aquifoliaceae. Holly.

A small deciduous tree, with leathery narrow oblong or lanceolate leaves 3 to 5 inches long and small globular berries

102902 to 102911—Continued.

one-sixth of an inch in diameter. Native to the Sikkim Himalayas.

102906. ILEX INSIGNIS Hook. f. Aquifoliaceae. **Holly.**

An attractive holly, native to the Sikkim Himalayas, where it grows at 7,000 feet altitude. It forms a small tree or shrub with thick, grooved branches which are purplish when young. The dark-green leathery leaves are pinnately lobed, with the lobes spine tipped and alternately raised and depressed, so that there appears to be a double row of spiny lobes on each side. This holly has proved hardy in Ireland and may be suited for growing in the Gulf States and southern California.

102907. KAEMPFERIA SIKKIMENSIS King. Zinziberaceae.

A low herbaceous plant native to India, with slender leafy stems 2 to 4 inches long. The sessile lanceolate leaves are 2 to 3 inches long, and the solitary tubular flower, 1 inch long, has linear-oblong, dark-lilac segments; the suborbicular lip of the staminode is white and entire.

102908. OSBECKIA CRINITA Benth. Melastomaceae.

A much-branched shrub 4 to 8 feet high, with small narrow bristly leaves and large purple or pure-white flowers borne in terminal clusters. The plant is abundant at altitudes between 4,000 and 8,500 feet in the mountains of Sikkim and Bhutan, India.

102909. OSBECKIA STELLATA Don. Melastomaceae.

An ornamental shrub 2 to 7 feet high, with reddish branchlets and membranous leaves 2 to 6 inches long. The delicately beautiful lilac-rose flowers have four ovate ciliate petals over an inch across. The conspicuous stamens are incurved, and the calyx tube is pale green with green-stalked stellate hairs, each bearing reddish rays.

102910. POUPARTIA AXILLARIS (Roxb.) King and Prain. Anacardiaceae.

A tree native to the low valleys of western China, where it becomes 50 to 80 feet high, with a trunk often 3 feet in diameter near the base. It has gray bark, massive branches, deciduous leaves, and inconspicuous flowers. The oval yellow fruits, about an inch long, are eaten by the Chinese.

102911. SYMPLOCOS RAMOSISSIMA Wall. Symplocaceae.

A shrub or tree up to 40 feet high, native to India. The oblong-lanceolate membranous leaves are 4 inches long, and the small white flowers are in axillary 1- to 6-flowered racemes.

102912 and 102913.

From Australia. Seeds presented by H. Wenzel, director of plant breeding, Department of Agriculture, Sydney, New South Wales, through J. B. Cleland. Received May 10, 1933.

102912. CALANDRINIA BALONENSIS Lindl. Portulacaceae. **Parakeelya.**

A perennial herb about a foot high, native to Queensland, Australia. The thick fleshy oblong-spatulate leaves are less than an inch long at the base of the plant,

102912 and 102913—Continued.

while the upper ones are 2 inches long and linear-lanceolate. The large purple flowers, 1 to 2 inches across, are borne in loose terminal racemes.

For previous introduction see 102078.

102913. CALANDRINIA REMOTA J. M. Black. Portulacaceae. **Parakeelya.**

A low procumbent annual, or possibly perennial, 4 to 12 inches high, native to South Australia. The succulent, linear-spatulate leaves are less than an inch long, and the rather large purple to white flowers are 1 to 2 inches across.

For previous introduction see 101290.

102914. CROTALARIA BURKEANA Benth. Fabaceae.

From Africa. Seeds presented by I. B. Pole-Evans, chief, Division of Plant Industry, Department of Agriculture, Pretoria, Union of South Africa, through E. Percy Phillips, principal botanist. Received May 11, 1933.

An erect slightly shrubby perennial 1 to 2 feet high, native to southern Africa, with the branches, petioles, and racemes densely hispid with long rusty hairs. The 3 to 5 linear-lanceolate leaflets are 1 to 2 inches long, and the yellow flowers, less than an inch long, are in terminal racemes.

102915 to 102975.

From China. Seeds collected in Lushan, Kiangsi Province, and presented by A. N. Steward, University of Nanking, Nanking. Received May 10, 1933.

102915. ACER sp. Aceraceae. **Maple.**

No. 10. From Chihsiensze.

102916. ADINA sp. Rubiaceae.

No. 36. From Kuanyinchiao. This is a rubiaceous genus of trees and shrubs closely resembling the American button-bush (*Cephalanthus occidentalis*). The simple leaves are opposite or whorled, and the inconspicuous flowers are in dense heads.

102917. ALBIZZIA sp. Mimosaceae.

No. 1. From Huangyenzse.

102918. ARALIA sp. Araliaceae.

No. 6. From Huangyenzse.

102919 to 102921. BENZOIN spp. Lauraceae.

The benzoin is aromatic shrubs or trees related to the American spicebush (*Benzoin aestivalis*). The yellow flowers appear in sessile clusters before the leaves, and the fruits are highly colored in autumn.

102919. BENZOIN sp.

No. 2. From Huangyenzse.

102920. BENZOIN sp.

No. 25. From Suifungzse.

102921. BENZOIN sp.

No. 39. From Kuanyinchiao.

102922. CALLICARPA sp. Verbenaceae.

No. 27. From Kuanyinchiao.

102923. CASTANEA SEGUINII Dode. Fagaceae.

102915 to 102975—Continued.

No. 74. From Haihweisze. A wild bush chestnut native to east-central China. It is usually a bush or low tree, but occasionally a shapely tree 40 feet high, with deep-green leaves, paler beneath, and small nuts of sweet agreeable flavor.

For previous introduction see 101607.

102924. *CELASTRUS* sp. Celastraceae.

No. 7. From Huangyenzse.

102925. *CELTIS* sp. Ulmaceae.

Hackberry.

No. 12. From Kuanyinchiao.

102926. *CEPHALOTAXUS* sp. Taxaceae.

No. 54. From Huangyenzse.

102927. *CITRUS* sp. Rutaceae.

No. 72. From Haihweisze.

102928. *CLERODENDRUM* sp. Verbenaceae.

No. 4. From Huangyenzse.

102929. *CRATAEGUS* sp. Malaceae.

Hawthorn.

No. 37. From Kuanyinchiao.

102930. *DEUTZIA* sp. Hydrangeaceae.

No. 45. From Haihweisze.

102931. *DIOSPYROS* sp. Diospyraceae.

Persimmon.

No. 24. From Haihweisze.

102932. *ELAEOCARPUS DECIPIENS* Hemsl. Elaeocarpaceae.

No. 52. From Kuanyinchiao. A subtropical tree with smooth narrowly ovate leaves about 5 inches long, numerous small white flowers in racemes, and small oval-oblong fleshy fruits scarcely three-fourths of an inch long. Native to southeastern China.

102933 to 102935. *EUONYMUS* spp. Celastraceae.

102933. *EUONYMUS* sp.

No. 29. From Yunchungsze.

102934. *EUONYMUS* sp.

No. 55. From Kuanyinchiao.

102935. *EUONYMUS* sp.

No. 64. From Haihweisze.

102936 and 102937. *EURYA* spp. Theaceae.

The euryas are shrubs with simple evergreen leaves and small flowers, usually in axillary clusters, followed by berrylite fruits. They are native to southern Asia.

102936. No. 49. From Dayahtsun.

102937. No. 50. From Kuanyinchiao.

102938. *EUSCAPHIS JAPONICA* (Thunb.) Dipp. Staphyleaceae.

No. 11. From Kuanyinchiao. A shrub up to 10 feet high, native to China and Japan. The compound leaves are made up of 7 to 11 ovate-lanceolate serrate leaflets 3 inches long; and the small white flowers, in upright panicles, are followed by brown-red fruits which open, exposing the steel-blue seeds.

102915 to 102975—Continued.

102939 and 102940. *EVODIA* spp. Rutaceae.

The evodias are deciduous or evergreen trees or shrubs with opposite simple or pinnate leaves, inconspicuous flowers, and small fruits which open and expose the black seeds. They are related to the American prickly-ash (*Zanthoxylum americanum*).

102939. No. 15. From Kuanyinchiao.

102940. No. 17. From Huangyenzse.

102941. *GARDENIA* sp. Rubiaceae.

No. 42. From Huangyenzse.

102942. *GREWIA* sp. Tiliaceae.

No. 34. From Huangyenzse.

102943. *HYDRANGEA* sp. Hydrangeaceae.

No. 22. From Huangyenzse.

102944 to 102946. *ILEX* spp. Aquifoliaceae.

Holly.

102944. *ILEX* sp.

No. 5. From Huangyenzse.

102945. *ILEX* sp.

No. 53. From Kuanyinchiao.

102946. *ILEX* sp.

No. 68. From Pailohtung.

102947. *JUNIPERUS* sp. Pinaceae.

Juniper.

No. 66. From Kuanyinchiao.

102948. *LAGERSTROEMIA* sp. Lythraceae.

Crapemyrtle.

No. 71. From Suifungsze.

102949. *LOROPEPALUM CHINENSE* (R. Br.) Oliver. Hamamelidaceae.

No. 18. From Kuanyinchiao. A handsome but somewhat tender Chinese evergreen bushy shrub, about 5 feet high, with wiry hairy branches, oval unsymmetrical leaves, and curious white witch-hazellike flowers during the early spring.

102950. *MAGNOLIA* sp. Magnoliaceae.

No. 62. From Chihsiensze.

102951. *PAULOWNIA* sp. Scrophulariaceae.

No. 38. From Kuanyinchiao.

102952. *PISTACIA* sp. Anacardiaceae.

No. 69. From Kuanyinchiao.

102953. *PITTIOSPORUM* sp. Pittosporaceae.

No. 59. From Kuanyinchiao.

102954. *PLATYCARYA STROBILACEA* Sieb. and Zucc. Juglandaceae.

No. 13. From Kuanyinchiao. A bush or small tree, or rarely a tree over 60 feet high, with thick dark deeply furrowed bark. The moderately thick branches form a rounded or flattened crown. The leaves, 12 inches long, are composed of 9 to 17 sessile, doubly serrate leaflets, and the brown, oval, conelike fruits are over an inch long.

102955. *PYRUS* sp. Malaceae.

Fear.

No. 28. From Kuanyinchiao.

102956. *RHAMNUS* sp. Rhamnaceae.

Buckthorn.

No. 35. From Kuanyinchiao.

102915 to 102975—Continued.

102957. RHODODENDRON sp. Ericaceae.

No. 41. From Huangyenzse.

102958. RHUS sp. Anacardiaceae. Sumach.

No. 33. From Huangyenzse.

102959 to 102961. ROSA spp. Rosaceae. Rose.

From Kuanyinchiao.

102959. No. 44. 102961. No. 61.

102960. No. 60.

102962. RUBUS sp. Rosaceae.

No. 3. From Huangyenzse.

102963. SPIRAEA sp. Rosaceae. Spirea.

No. 21. From Huangyenzse.

102964. STYRAX sp. Styracaceae. Snowbell.

No. 19. From Huangyenzse.

102965. SYMPLOCOS sp. Symplocaceae. Sweetleaf.

No. 65. From Haihweiszse.

102966 to 102968. THEA spp. Theaceae.

102966. No. 9. From Huangyenzse.

102967. No. 31. From Huangyenzse.

102968. No. 43. From Pailohtung.

102969. VANIERIA sp. Moraceae.

No. 46. From Pailohtung. The vanierias are woody plants, native to south-eastern Asia, closely related to the cudranias. The inconspicuous flowers are followed by fleshy subglobose fruits that resemble mulberries.

102970. VIBURNUM sp. Caprifoliaceae.

No. 26. From Haihweiszse.

102971. ZANTHOXYLUM sp. Rutaceae. Prickly-ash.

No. 14. From Kuanyinchiao.

102972. ZANTHOXYLUM sp. Rutaceae. Prickly-ash.

No. 16. From Kuanyinchiao.

102973. (Undetermined.)

No. 8. From Huangyenzse.

102974. (Undetermined.)

No. 20. From Huangyenzse.

102975. (Undetermined.)

No. 63. From Haihweiszse.

102976. MANGIFERA INDICA L. Anacardiaceae. Mango.

From Surinam. Seeds presented by the director of the agricultural experiment station at Paramaribo, through David Fairchild. Received May 16, 1933.

Mangga golek.

102977. ALLIUM sp. Liliaceae.

From India. Seeds presented by E. A. Beale, deputy director of agriculture, Irrawaddy Circle, Myaungaya, Lower Burma, through W. E. Gregson, deputy director of agriculture, Tenasserim Circle, Moulemein. Received May 15, 1933.

Introduced for the use of Department specialists.

102978 to 102984.

From the Union of Soviet Socialist Republics. Seeds presented by V. P. Alekseev, chief, Bureau of Introduction, Institute of Plant Industry, Leningrad. Received May 17, 1933.

102978 to 102982. ALLIUM CEPA L. Liliaceae. Onion.

Originally collected in Asia Minor by the expedition of Professor Zhukovsky.

102978. No. 119/1. From Bitlis.

102979. No. 119/6. From Bitlis.

102980. No. 119/16.

102981. No. 119/21.

102982. No. 119/37. From Trebizond.

102983 and 102984. ALLIUM PORRUM L. Liliaceae. Leek.

Originally from western Persia, collected by the Tcherniakovsky expedition.

102983. No. 31/1.

102984. No. 31/3.

102985. EUGENIA LIGUSTRINA (Swartz) Willd. Myrtaceae.

From Cuba. Seeds presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, through F. G. Walsingham. Received May 17, 1933.

A low tropical American shrub with papery lanceolate leaves, shining above and pale beneath, solitary white flowers half an inch across, and globose smooth berries one-fourth of an inch in diameter.

102986. AMARANTHUS GANGETICUS L. Amaranthaceae. Ganges amaranth.

From California. Seeds presented by Ernest L. Lutz, Summit. Received May 19, 1933.

Beh Han Tsai, or white Han Tsai. Seed of plants grown from seed brought from China by Mr. Lutz. An annual herb whose stems and leaves are prepared in much the same manner as spinach and used for food in China.

For introduction of a red form see 102737.

102987 to 103000. AGAVE spp. Amaryllidaceae.

From Mexico. Plants purchased from Howard E. Gates, Anaheim, Calif. Received May 22, 1933.

Native plants, collected in Baja California by Howard E. Gates.

102987. AGAVE AUREA Brandegee.

A stemless plant with a rosette of about 50 gray-green, narrow-lanceolate leaves about 3 feet long, armed with unequally triangular, often upcurved prickles and ending in a chestnut-colored spine an inch long. The numerous golden-yellow flowers are borne on a scape about 5 feet high.

102988. AGAVE AFFINIS Trelease.

An agave with rough, gray-green, triangular-oblong leaves about 20 inches long, terminating in an ashen or nearly white spine over an inch long. The flowers are borne in a short branched panicle.

102987 to 103000—Continued.

102989. AGAVE ORCUTTIANA Trelease.

An agave, resembling *Agave shawii*, with a reclinate trunk sometimes 10 feet long. The smooth green narrow leaves, 6 inches to a foot long, end in a dull gray spine an inch long. The flowers, 3 inches long, are in a panicle.

102990. AGAVE CONNOCHAETODON Trelease.

A stemless agave with dull pale-green oblanceolate leaves about 10 inches long, ending in a dull-red or ashen spine about 2 inches long. The flowers are borne on a scape sometimes 10 feet high.

102991. AGAVE GOLDMANIANA Trelease.

With the general aspect of *Agave shawii*, this plant has a short trunk and ovate-lanceolate, stiffly erect-spreading leaves about 20 inches long, ending in a dull dark-gray spine over an inch long. The deeply funnelform flowers are on a scape 15 to 20 feet high.

102992. AGAVE SOBRIA T. S. Brandegee.

A stout plant with lanceolate leaves, curved outward, ending in a stout spine about 1 inch long. The campanulate orange-yellow flowers are on an erect scape 6 to 12 feet high, the flower panicle occupying more than half its length.

102993. AGAVE NELSONI Trelease.

A stemless caespitose plant with stiffly erect spreading glaucous oblong-ovate openly concave leaves about 1 foot long, armed with fragile, easily detached marginal prickles and a blackish terminal spine sometimes an inch long. The light yellow flowers are borne in a panicle on a slender scape 12 to 25 feet high.

102994. AGAVE MARGARITAE T. S. Brandegee.

An agave with a rosette of 40 to 50 leaves 4 to 6 inches long, all concave, ending in a terminal spine an inch long. The light-yellow flowers are borne on a scape 8 to 12 feet high.

102995. AGAVE VEXANS Trelease.

An agave with smooth, gray-green, linear-triangular leaves a foot long, very gradually acute, ending in a dull gray-brown spine about an inch long. The greenish flowers are on a slender scape 4 to 6 feet high.

102996. AGAVE SEBASTIANA Greene.

A stemless agave with ascending glaucous ovate-lanceolate leaves a foot long, tapering into a stout spine 2 inches long, and yellow flowers on a stout scape 6 to 10 feet high.

102997. AGAVE BRANDEGEEI Trelease.

An agave with grayish, yellow-green, lanceolate, gradually acute leaves about 2 feet long, ending in a glossy red-brown recurving spine less than an inch long. The yellow flowers are nearly 2 inches long.

102998. AGAVE ROSEANA Trelease.

A somewhat caespitose succulent with stiffly spreading glaucous, gray-green, broadly lanceolate leaves 6 to 20 inches long, terminating in a purple-chestnut tortuous spine 2 to 3 inches long. The slender scape is 6 to 12 feet high.

102999. AGAVE sp.

Gates no. 231.

102987 to 103000—Continued.

103000. AGAVE DATYLIO Web.

A low stemless plant growing in clumps. The rigid straight narrow leaves, 1 to 1½ feet long, terminate in a black spine about half an inch long, and the whitish flowers are on a scape about 12 feet high.

103001. PASSIFLORA EDULIS Sims.
Passifloraceae. Purple granadilla.

From Hawaii. Seeds presented by W. T. Pope, Agricultural Experiment Station, Honolulu. Received May 17, 1933.

Variety *flavicarpa*. A yellow-fruited passion fruit of large size, with golden yellow juice of exceptionally fine flavor.

103002. PHOENICOPHORUM BORSIGIANUM
(Koch) Stuntz (*Stevensonia grandifolia* Duncan). Phoenicaceae.
Palm.

From Cuba. Plants presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, through F. G. Walsingham. Received May 22, 1933.

Seedling plants grown in the Hope Gardens, Jamaica. This noble palm, famous for its beauty, is indigenous to the Seychelles Islands. The mature palm is wholly destitute of spines, whereas in the young state the deep orange-red petioles are clothed with black needlelike spines 1 to 3 inches long. The young leaves are orange beneath and mottled with orange spots above. The difference between the young and the mature plants is so great that the uninitiated would consider them different species. The flower spike is from 3 to 6 feet long, divided into numerous slender branches, swollen at the base and densely covered above with yellow flowers each about one-fourth of an inch in diameter.

For previous introduction see 94092.

103003 to 103014.

From New Zealand. Seeds presented by A. Wilkinson, Tauranga. Received May 13, 1933.

103003. ACIPHYLLA COLENSOI Hook. f.
Apiaceae.

A stout perennial herb 2 to 5 feet high, native to New Zealand. The numerous radical leaves form a circle of bayonetlike spikes around the base of the stem, each 1 to 3 feet long, pinnate or bipinnate at the base, with few secondary narrowly linear leaflets 5 to 15 inches long, terminated by a long stout spine. The small white flowers are in a cylindrical panicle made up of numerous umbels.

For previous introduction see 101271.

103004. CELMISIA SPECTABILIS Hook. f.
Asteraceae.

A herbaceous perennial with short stout stems and numerous linear-oblong thick leaves, 6 inches long, covered with silvery hairs above and densely matted pale-buff wool beneath. The several stout cottony scapes are longer than the leaves and bear white flower heads 1 to 2 inches broad. Native to New Zealand, where it often grows in extensive stands.

103003 to 103014—Continued.

103005. DAHLIA MERCKII Lehm. Astera-
ceae. Bedding dahlia.

A single-flowered dahlia, 2 to 3 feet high, with bipinnate leaves and flowers typically lilac in color. This dahlia comes true from seed.

103006. ENTELEA ARBORESCENS R. Br. Tiliaceae.

A New Zealand shrub or small tree 20 feet high, with the growing parts covered with soft stellate hairs. The alternate cordate leaves, nearly a foot across, are on petioles 8 inches long, the white flowers, an inch in diameter, are in erect cymes, and the globose pods are covered with long rigid bristles.

103007. GERANIUM TRAVERSII Hook. f. Geraniaceae. Cranesbill.

A perennial herb with decumbent or prostrate stems 1 to 2 feet long, native to New Zealand. All parts of the plant are covered with silvery hairs. The nearly orbicular leaves, 1 to 3 inches across, have 5 to 7 lobes, and the radical leaves have petioles up to 9 inches long. The white or pink flowers, 1 inch wide, are borne on slender peduncles 1 to 4 inches long, with two acuminate bracts at the middle.

103008. HERB FORMOSA (R. Br.) Cock-
ayne (*Veronica formosa* R. Br.).
Scrophulariaceae.

A glabrous evergreen shrub 2 to 4 feet high, native to Tasmania. The thick lanceolate entire leaves are about 1 inch long, and the pale-lilac flowers are borne in short racemes in the axils of the upper leaves.

103009. HERB VENUSTULA (Colenso)
Cockayne (*Veronica venustula* Co-
lenso). Scrophulariaceae.

A small compact shrub 6 to 9 inches high, native to New Zealand. The oblong-ovate leathery leaves, less than 1 inch long, are close-set on the branches, and the small white flowers are in terminal much-branched racemes.

103010. LEUCOGENES LEONTOPODIUM
(Hook. f.) Beauvard. Asteraceae.

A much-branched dwarf perennial, woody at the base, 2 to 8 inches high. The linear-lanceolate, densely imbricated leaves are three-fourths of an inch long, and the small densely woolly flower heads are borne in compact clusters of 8 to 15. The plant has the same aspect as the edelweiss of the European Alps.

103011. MYOSOTIDIMUM HORTENSIA (De-
caisne) Bail. (*M. nobile* Hook.).
Boraginaceae.

A stout succulent perennial herb, 1 to 3 feet high, native to the Chatham Islands. The thick fleshy radical leaves, 6 to 12 inches long, are broadly cordate or reniform, and the blue flowers, one-half inch across, are borne in dense corymbose cymes.

For previous introduction see 101284.

103012. OLEARIA sp. Asteraceae. Daisytree.

A mixture of species native to Tasmania. The olearias are evergreen trees or shrubs of the Australian region with flowers like the asters, to which they are closely related.

103003 to 103014—Continued.

103013. PETROPHILA BILOBA R. Br. Pro-
teaceae.

A shrub with slender villous branchlets, native to Western Australia. The leathery leaves are pinnately divided into four rhomboid sharp-pointed lobes about one-half inch long, and the small flowers are borne in ovoid conelike spikes about one-fourth of an inch long, crowded along the branchlets.

103014. (Undetermined.)

103015. EPIDENDRUM VITELLINUM Lindl. Orchidaceae.

From Baja California, Mexico. Plants presented by Waldo S. Schmidt, United States National Museum, Washington, D. C. Received May 24, 1933.

An orchid, native to Mexico, with ovoid pseudobulbs 2 inches long, each bearing 1 to 3 leaves 6 to 9 inches long. The cinnamon-red flowers with orange lips are borne in 10- to 15-flowered racemes on peduncles 1 to 2 feet long.

103016. PASSIFLORA EDULIS Sims. Pas-
sifloraceae. Purple granadilla.

From Brazil. Seeds presented by P. H. Rolfs, Rio de Janeiro. Received May 19, 1933.

Seed from fruits over an inch in diameter, purchased in a confectionery store at Curatyba, Parana, Brazil, April 22, 1933.

103017 and 103018.

From the Galapagos Islands. Seeds presented by Waldo S. Schmitt, United States National Museum, Washington, D. C. Received May 25, 1933.

103017. CASSIA sp. Caesalpinjiaceae.

103018. VIGUIERA sp. Asteraceae.

From Duncan Island. The vigueras are tropical shrubs, or subshrubs, related to the sunflowers, with the rather small flower heads in ample corymbs.

103019. (Undetermined.)

From the Union of South Africa. Seeds presented by a Mr. Breslin, of Victoria. Received May 25, 1933.

Introduced for testing by Department specialists as a possible source of rubber.

103020. ARECA sp. Phoenicaceae. Palm.

From Cuba. Seeds presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, through F. G. Walsingham. Received May 26, 1933.

The arecas are graceful spineless palms with attractive pinnate leaves.

103021. CINCHONA sp. Rubiaceae.

From the British West Indies. Seeds presented by F. T. Landale, Jamaica, through Col. Victor E. Ruehl, Caldwell, N. J. Received May 24, 1933.

103022. CINCHONA sp. Rubiaceae.

From Guatemala. Seeds presented by the American consul general, Guatemala City, through Col. Victor E. Ruehl, Caldwell, N. J. Received May 25, 1933.

103022—Continued.

From Finca Chejel, Tucuru, Alta Vera Paz.

103023. EUPHORBIA ABYSSINICA Gmel.
Euphorbiaceae. Spurge.

From Africa. Seeds presented by the Government Agricultural Station, Asmara, Eritrea, through L. Croizat, New York, N. Y. Received May 31, 1933.

A plant which attains a height of 30 to 40 feet in poor dry soil and yields a large quantity of latex containing about 5 percent of first-class rubber.

103024 and 103025.

From Wonosobo, Java. Seeds originally from Russia, presented by A. M. Cramer, of Cramer & Zoon. Received May 29, 1933.

103024. BUTIA CAPITATA × ERIOSPATHA.
Phoenicaceae. Palm.

A natural hybrid combining characters of both parents. The fruits closely resemble in flavor the best Japanese loquats, and the tree will probably thrive wherever the Satsuma orange is grown commercially.

For previous introduction see 100275.

103025. PRUNUS sp. Amygdalaceae.

A plum introduced for testing by Department specialists.

103026 and 103027.

From Cuba. Seeds presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soleidad, Cienfuegos, through F. G. Walsingham. Received May 26, 1933.

103026. ALBIZZIA ADINOCEPHALA (Donn.-Smith) Britton and Rose. Mimrosaceae.

A small unarmed tree, with rather small compound leaves composed of 1 or 2 pairs of lanceolate leathery leaflets 1 or 2 inches long and flower heads in terminal panicles about 4 inches long. Native to Costa Rica.

103027. CAESALPINIA PAUCIFLORA (Griseb.) C. Wright. Caesalpinaceae.

A slender shrub 5 to 8 feet high, native to the West Indies. The compound leaves have 8 to 12 pinnae, each bearing a few oblong to obovate leaflets one-half inch long; the yellow flowers with crisped petals are borne in racemes.

103028 to 103038. SOLANUM spp. Solanaceae.

From the Union of Soviet Socialist Republics. Tubers presented by the Institute of Plant Industry, Leningrad. Received June 3, 1933.

A collection of South American species of *Solanum* of the section *Tuberarium*; introduced for the use of Department specialists.

103028. SOLANUM AJANHUIRI Juz. and Buk.

No. 8018. A species from high altitudes in Bolivia; it forms the best tubers of all the frost-resistant species.

103029. SOLANUM CHAUCHA Juz. and Buk.

No. 8100. A tropophytic species from Peru and Bolivia which rarely forms berries.

103028 to 103038—Continued.

103030. SOLANUM CHOCOLO Juz. and Buk.

No. 8143. A mountain species from southern Peru and Bolivia.

103031. SOLANUM CURTILOBUM Juz. and Buk.

No. 8003. From the mountains of southern Peru and Bolivia.

103032. SOLANUM GONIOCALYX Juz. and Buk.

No. 8027. A polymorphous mountain species of central Peru with small yellow tubers.

103033. SOLANUM MAMILLIFERUM Juz. and Buk.

No. 8136. From the mountains of southern Peru and Bolivia.

103034. SOLANUM PHUREJA Juz. and Buk.

No. 8070. A species from the mountain valleys of Bolivia which produces medium-sized tubers of very low starch content.

103035. SOLANUM RYBINII Juz. and Buk.

No. 8023. From the mountains of Colombia. A species which rarely forms berries and is tender to frost.

103036. SOLANUM STENOTOMUM Juz. and Buk.

No. 8042. A hydrophytic species from southern Peru and Bolivia which is not frost hardy.

103037. SOLANUM ANDIGENUM TARMENSE Juz. and Buk.

No. 8113. A form with the leaf segments small; found in the vicinity of Tarma, Peru.

103038. SOLANUM TENUFILAMENTUM Juz. and Buk.

No. 8105. A tender species from the mountains of southern Peru and Bolivia.

103039. CITRUS SINENSIS (L.) Osbeck.
Rutaceae. Orange.

From Southern Rhodesia. Scions presented by W. J. Hall, director, Citrus Experiment Station, Mazoe, through A. A. Morris. Received June 3, 1933.

Premier orange, a new variety which is said to be a very early sort and to give a good yield.

103040 to 103068.

From China. Seeds purchased in Peiping by Peter Liu. Received May 29, 1933.

103040. APIUM GRAVEOLENS L. Apiaceae.
Celery.

No. 13. *Chin Tsai*.

103041. BENINCASA HISPIDA (Thunb.) Cogn. Cucurbitaceae. Waxgourd.

No. 21. *Chia Tung Kua*, a winter gourd.

103042. BETA VULGARIS L. Chenopodiaceae.
Beet.

No. 17. *Ken Ta Tsai*.

103043 to 103047. BRASSICA spp. Brassicaceae.

103043. BRASSICA OLERACEA CAULO-RAPA DC. Kohlrabi.

No. 18. *Pei Lan*.

103040 to 103068—Continued.

103044. BRASSICA sp.
No. 5. *Hsiao Yu Tsai*, small oil cabbage.
103045. BRASSICA sp.
No. 6. *Hsien Hao Pai*, white stork cabbage.
103046. BRASSICA sp.
No. 7. *Hsiao Pai Kou Pai Tsai*, short white cabbage.
103047. BRASSICA sp.
No. 8. *Ch'ing Kou Pai Tsai*, green top cabbage.
103048. CAPSICUM ANNUM L. Solanaceae.
Common redpepper.
- No. 9. *Ta Shih Tse*, large persimmon pepper.
103049. CUCUMIS SATIVUS L. Cucurbitaceae.
Cucumber.
- No. 12. *Kuai Huang Kua*, early cucumber.
103050. CUCURBITA MAXIMA Duchesne. Cucurbitaceae.
Squash.
- No. 20. *Pai Nan Kua*, white pumpkin.
103051. CUCURBITA MOSCHATA Duchesne. Cucurbitaceae.
Cushaw.
- No. 19. *Pa Leng Wo Kua*, eight cornered pumpkin.
103052. DOLICHOS LABLAB L. Fabaceae.
Hyacinth-bean.
- No. 28. *Chia Pien Tou*, framed flat bean.
103053. LACTUCA SATIVA L. Cichoriaceae.
Garden lettuce.
- No. 15. *Tuan Yieh Sheng Tsai*, round-leaved lettuce.
103054. LACTUCA SATIVA L. Cichoriaceae.
Garden lettuce.
- No. 16. *Shang Yieh Sheng Tsai*, long-leaved lettuce.
103055. LYCOPERSICON ESCULENTUM Mill. Solanaceae.
Tomato.
- No. 4. *Ta Hsi Hung Shih*, large red tomato.
103056. MEDICAGO SATIVA L. Fabaceae.
Alfalfa.
- No. 26. *Mu Hsu*, alfalfa.
103057. PHASEOLUS VULGARIS L. Fabaceae.
Common bean.
- No. 27. *Hung Yun Tou*, red garden bean.
103058. PISUM SATIVUM L. Fabaceae.
Pea.
- No. 10. *Pai Wan Tou*, white pea.
103059. RAPHANUS SATIVUS L. Brassicaceae.
Radish.
- No. 3. *Hsiao Hung Shui Lo Pu*, small red water radish.
103060. RAPHANUS SATIVUS L. Brassicaceae.
Radish.
- No. 14. *Hsiang Ya Pai Lo Pu*, elephant tusk radish.
103061. SOLANUM MELONGENA L. Solanaceae.
Eggplant.
- No. 1. *Ta Hai Chieh Tze*, large eggplant.

103040 to 103068—Continued.

103062. SOLANUM MELONGENA L. Solanaceae.
Eggplant.
- No. 2. *Kuai Chieh Tze*, early eggplant.
103063. SPINACIA OLERACEA L. Chenopodiaceae.
Common spinach.
- No. 11. *Po Tsai*.
103064. VICIA FABA L. Fabaceae.
Broadbean.
- No. 29. *Tsan Tou*, silkworm bean.
- 103065 to 103068. VIGNA SESQUIPEDALIS (L.) Fruwirth. Fabaceae.
Asparagus-bean.
103065. No. 22. *Hsien Chiang Tou*, thread cowpea.
103066. No. 23. *Shih Pa Tou*, 18-seed cowpea.
103067. No. 24. *Huang Hua Ch'ing Chiang Tou*, yellow-flowered cowpea.
103068. No. 25. *Ssu Kua Ch'ing Chiang Tou*, the green-thread gourd cowpea.
- 103069 to 103074. TRITICUM AESTIVUM L. (*T. vulgare* Vill.). Poaceae.
Common wheat.
- From Australia. Seeds presented by Dr. A. McTaggart, Council for Scientific and Industrial Research, Division of Plant Industry, Department of Agriculture, Canberra. Received June 1, 1933.
- A collection of Australian varieties, supplied by the plant genetics section, Federal Capital Territory, Canberra, from the 1931 crop. Introduced for the use of Department specialists.
103069. *Dindilo a*, W. 293a.
103072. *Pilot*, W. 737a.
103070. *Firw hill*, W. 364a.
103073. *S. H. J.*, W. 875a.
103071. *Genoa*, W. 394a.
103074. *Zealand*, W. 1063a.
- 103075 to 103078.
- From China. Seeds collected by Peter Liu, in the vicinity of Peiping. Received June 1, 1933.
103075. CUCURBITA MOSCHATA Duchesne. Cucurbitaceae.
Cushaw.
- Erh Ch'iu Tze Wo Kua*, early pumpkin.
103076. CUCURBITA MOSCHATA Duchesne. Cucurbitaceae.
Cushaw.
- Kuai Wo Kua*, autumn pumpkin.
103077. SOLANUM MELONGENA L. Solanaceae.
Eggplant.
- Tieh Pa Hei Chieh Tze*, black-stem eggplant.
103078. VIGNA SESQUIPEDALIS (L.) Fruwirth. Fabaceae.
Asparagus-bean.
- Ssu Kua Ch'ing Chiang Tou*, green-thread gourd cowpea.
- 103079 to 103098. SOJA MAX (L.) Piper. Fabaceae.
Soybean.
- From China. Seeds presented by Dr. Chin Tu, Honan University, Kaifeng, Honan. Received June 7, 1933.

103079 to 103098—Continued.

A collection of soybeans from Honan and the neighboring Provinces, introduced for the use of Department specialists.

103079. No. 48. *Shang Tsai*.
 103080. No. 52. *White soybean*.
 103081. No. 53. *Yellow soybean*.
 103082. No. 61. *Lu Yi*.
 103083. No. 69. *Wen Hsuan*.
 103084. No. 70. *Ling Pao*.
 103085. No. 71. *Shi Hua*.
 103086. No. 73. *Wen Hsiang*.
 103087. No. 74. *Tung Hsu*.
 103088. No. 78. *Ming Chuan*.
 103089. No. 80. *Yunan*.
 103090. No. 81. *Suiping*.
 103091. No. 89. *Wu An*.
 103092. No. 93. *Kaifeng*.
 103093. No. 101. *Wai Chuan*.
 103094. No. 103. *Lukou*.
 103095. No. 106. *Ming Chuan*.
 103096. No. 108. *Kaifeng*.
 103097. No. 109. *Hsin Cheng*.
 103098. No. 111. *Cheng Hsuan*.

103099 to 103106.

From the Union of South Africa. Seeds, native to southern Africa, presented by the McGregor Museum, Kimberley. Received June 8, 1933.

103099 to 103102. *ALOE* spp. Liliaceae.103099. *ALOE BROOMII* Schoenland.

An erect or ascending plant with a short trunk bearing a dense rosette of ovate-lanceolate unspotted glaucous or reddish leaves up to 5 inches long. The yellow flowers are in a dense raceme on a short thick scape.

103100. *ALOE HEREROENSIS* Engler.Variety *orpeniae*.

For previous introduction and description see 102789.

103101. *ALOE PRETORIENSIS* Pole Evans.

An aloe with dense rosettes of tapering leaves, usually withered at the red tips, with a stoutish stem 4 to 5 inches in diameter. The dark-brown to black stem is extremely rough and is clothed throughout its entire length by the remains of withered leafstalks. The most distinctive feature of the plant is its tall branched inflorescence with dense racemes of bright-scarlet flowers.

103102. *ALOE WICKENSII* Pole Evans. Liliaceae.

A handsome stemless succulent with a dense rosette of narrow sword-shaped pale-green leaves about 2 feet long and yellow flowers in a dense raceme.

103103. *ARTHROSOLEN POLYCEPHALUS* (E. Mey.) Meyer. Thymelaeaceae.

A much-branched shrub 1 to 2 feet high. The linear-lanceolate leaves are 6 inches long, and the rich-yellow flowers, in small terminal heads, are surrounded by colored bracts.

103099 to 103106—Continued.

103104. *CERATOTHECA TRILOBA* E. Mey. Pedaliaceae.

An erect annual plant up to 6 feet high. The obtusely quadrangular stems are hairy, and the coarsely crenate leaves, 1 to 6 inches long, vary from broadly cordate and three-lobed near the base to lanceolate and sparingly crenate at the top of the plant. The solitary axillary flowers, 2 to 3 inches long, are lilac streaked with purple, and the loosely pubescent capsules, an inch long, have two horns at the tip.

103105. *RHIGOZUM BREVISPINOSUM* Kuntze. Bignoniaceae.

An erect spiny shrub 4 to 10 feet high. The oblong to oblanceolate leaves, 1 to 2 inches long, are tomentose and clustered at the tips of the branchlets, and the campanulate funnel-shaped yellow or white flowers are less than an inch long and are axillary or fascicled in the leaf clusters.

103106. *SESAMUM CAPENSE* Burm. f. Pedaliaceae.

For previous introduction and description see 102814.

103107. *BALSAMOCITRUS PANICULATA* (Schum.) Swingle. Rutaceae.

From Africa. Seeds presented by J. Voelcker, agricultural botanist, Moor plantation, Hadan, Nigeria. Received June 13, 1933.

Sanga fruit. A spiny shrub, native to western tropical Africa, with membranous trifoliate leaves consisting of oblong-ovate leaflets 1 to 3 inches long, small white flowers, and globose woody fruits.

For previous introduction see 100912.

103108 and 103109.

From Cuba. Seeds presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos, through F. G. Walsingham. Received June 12, 1933.

103108. *PHOEBE ELONGATA* Nees. Lauraceae.

A tree up to 60 feet high, native to tropical America. The elliptic to ovate leaves, 2 to 8 inches long, are glabrous above and slightly pilose beneath, and the small white flowers are borne in axillary clusters.

103109. *TABEBUIA HETEROPHYLLA* (DC.) Britton (*T. triphylla* DC.). Bignoniaceae.

A shrub or small tree up to 30 feet high, native to the West Indies. The densely lepidote compound leaves are made up of 1 to 5 oblong to obovate leathery leaflets 1 to 3 inches long, and the pink-and-white funnel-form flowers, 2 to 3 inches long, are borne in clusters of 1 to 20.

103110. *PHOENIX PUSILLA* Gaertn. Phoenicaceae. **Date palm.**

From India. Seeds collected by the systematic botanist of the Madras Presidency through the principal of the Agricultural College of Coimbatore, and presented through the Royal Botanic Gardens, Kew, England. Received June 13, 1933.

103110—Continued.

A dwarf palm about 4 feet high, with pinnate leaves having spiny petioles, dark-green, sword-shaped leaflets, and black fruits. The stem is said to contain a farinaceous pith. It is native to Ceylon and is introduced for the use of Department specialists.

For previous introduction see 94097.

103111 to 103150.

From China. Seeds obtained by native collectors and presented by Henry McLaren, Bodnant Gardens, North Wales. Received June 12, 1933.

The numbers correspond to those of the herbarium specimens at the Royal Botanic Gardens, Edinburgh, Scotland.

103111. ABIES DELAVAYI Franch. Pinaceae. Fir.

C. 195. A tall tree, often 100 feet high, native to western China. The slightly grooved branchlets are lustrous red brown; and the emarginate linear leaves, about 1 inch long, are revolute on the margin, dark green above and with two white bands beneath. The violet-black, cylindrical to ovoid cones are 2 to 4 inches long.

For previous introduction see 100501.

103112. ACER DAVIDI Franch. Aceraceae. Maple.

C. 285. A native Chinese maple, 50 to 60 feet high, with large oval heart-shaped coarsely toothed leaves and long pendent clusters of samaras.

For previous introduction see 100850.

103113. ACER PAXII Franch. Aceraceae. Maple.

C. 300. An evergreen maple from the mountain forests of southwestern China, with stiff leathery obovate or 3-lobed leaves 2 inches long.

103114. ASTILBE RIVULARIS Buch.-Ham. Saxifragaceae.

B. 79. A perennial herb, native to Nepal and western China, with stems 3 to 5 feet high covered with tawny hairs. The biternate leaves have dentate ovate leaflets 1 to 3 inches long, and the cream-white flowers with pure-white stamens are borne in large paniced spikes at the top of the stems.

For previous introduction see 99721.

103115. BUDDLEIA TALIENSIS W. W. Smith. Loganiaceae.

C. 201. A shrub 6 to 9 feet high much like *Buddleia forrestii*. The lanceolate papery leaves, about 4 inches long, are densely hairy, and the deep maroon-crimson flowers are in a dense thyrsoid cyme. Native to Yunnan.

103116. CAESALPINIA SEPIARIA Roxb. Caesalpinaceae. Mysore thorn.

C. 99. A scrambling spiny pubescent shrub native to India. The compound leaves are made up of 12 to 20 pairs of pinnae each bearing 16 to 24 oblong leaflets an inch long. The bright-yellow flowers, an inch across, are in simple racemes a foot long.

For previous introduction see 102345.

103111 to 103150—Continued.

103117. CAPPARIS BODINIERI Leveille (*C. subtenera* Craib and Smith). Capparidaceae.

C. 164. A semiscandent spiny shrub 10 to 20 feet high, with ovate-oblong or lanceolate leaves 2 to 4 inches long and translucent purple-gray flowers in small clusters in the upper leaf axils. Native to southwestern China.

103118. CARAGANA FRANCHETIANA Komarov. Fabaceae.

C. 248. A stout shrub with long branches, sometimes spiny, small compound leaves consisting of about two pairs of narrow obovate leaflets one-third of an inch long, and yellow flowers about 1 inch long. Native to southwestern China.

103119. CAULEYA LUTEA Royle. Ziniberaceae.

B. 144. A slender herbaceous plant, native to temperate regions of the Himalayas, 12 to 13 inches high, with narrow sessile leaves and loose spikes of yellow flowers in calyces. The globose capsules are bright red.

103120. CHIONANTHUS RETUSA Lindl. Oleaceae. Chinese fringetree.

C. 98. A handsome deciduous hardy ornamental tree bearing, during the spring, a multitude of small white delicately fragrant flowers, with very narrow petals, followed in the fall by masses of blue berries resembling wild grapes. This species is considered by some to be superior to the Virginia fringetree (*Chionanthus virginica*), because of the whiteness and fragrance of its flowers and its more graceful habits.

103121. COLQUHOUNIA COCCINEA Wall. Menthaceae.

B. 249. A climbing shrubby mint, closely related to *Stachys*, native to the temperate Himalayas at altitudes between 7,000 and 9,000 feet in India. The tomentose branches, 8 to 10 feet long, bear ovate to cordate leaves 2 to 5 inches long, and the dull-red tubular flowers, in axillary clusters, have orange or yellow corolla lobes.

103122. CORNUS CAPITATA Wall. Cornaceae. Evergreen dogwood.

C. 221. A small evergreen tree native to the lower slopes of the Himalayas between 4,000 and 7,000 feet altitude in India. The leathery oblong-lanceolate leaves, 2 to 4 inches long, are densely white pubescent beneath. The involucrel bracts, 1 to 2 inches long, are creamy white, and the scarlet fruit-head, shaped like a strawberry, is 1 to 2 inches in diameter and is edible.

103123. CORYLUS TIBETICA Batal. Betulaceae. Hazelnut.

C. 269. A shrubby tree up to 30 feet high, native to central and western China. The broadly ovate to cordate sharply serrate leaves are 2 to 6 inches long, and the small globose nuts are borne in glabrous spiny involucrel, resembling a chestnut bur, 2 inches in diameter.

103124. COTONEASTER SEROTINA Hutchinsson. Malaceae.

C. 157. A small Chinese tree with elliptic papery leaves, small white flowers

103111 to 103150—Continued.

borne in many-flowered corymblike clusters, and attractive bright-red berries which persist throughout most of the winter.

103125. *DECAISNEA FARGESII* Franch. Lardizabalaceae.

C. 259. A handsome deciduous shrub up to 15 feet high, with large drooping pinnate leaves 3 feet long, greenish flowers in pendulous racemes a foot or more long, and deep-blue fruits 3 to 4 inches long. Native to western China.

For previous introduction see 100871.

103126. *INDIGOFERA NIGRESCENS* Kurz. Fabaceae. Indigo.

C. 298. An annual legume with pink flowers and abundant seed. It becomes 1 to 4 feet high, but the odorous herbage is not eaten by cattle. It is of value as a green manure.

103127. *JUNIPERUS FORMOSANA* Hayata. Pinaceae. Formosa juniper.

C. 283. A tree 30 to 40 feet high, with several trunks arising from near the base; native to Taiwan. The spreading or ascending branches have pendulous branchlets, the linear sharp-pointed leaves, 1 inch long, have two broad white bands above, and the red or orange-brown globose fruits are one-third of an inch in diameter.

103128. *JURINEA EDULIS* Franch. Asteraceae.

B. 194. A leafy herb, 4 to 10 inches high, with membranous, deeply lobed, oblong-obovate, long-stemmed leaves and violet-blue flower heads over 2 inches in diameter. Native to southwestern China.

103129. *LEYCESTERIA FORMOSA STENOSEPALA* Rehd. Caprifoliaceae.

C. 149. A shrub 6 to 8 feet high, native to western Szechwan, China. The broadly ovate leaves are 5 to 7 inches long. The white or pale-purple flowers are in axillary spikes and are followed by bright-red fruits.

103130. *PHILADELPHUS HENRYI* Koehne. Hydrangeaceae.

C. 138. A shrub about 4 feet high, with chestnut-brown bark, narrow-ovate slightly hairy papery leaves 1 to 2 inches long, and white flowers about 1 inch across, in racemes of 3 to 13 flowers. Native to Yunnan.

103131. *PIPTANTHUS FORRESTII* Craib. Fabaceae.

C. 15. A shrub 9 to 13 feet high, with alternate trifoliate leaves composed of lanceolate light-yellow leaflets over an inch long and half an inch across. Native to alpine meadows in southwestern China.

103132. *PISTACIA CHINENSIS* Bunge. Anacardiaceae. Chinese pistache.

C. 241. A large deciduous tree, sometimes reaching a height of 80 feet, native to central and western China. The pinnate leaves, about 9 inches long, consist of 10 to 12 narrow-oval leaflets. Because of its glossy green foliage, which becomes brilliant crimson in the autumn, and its rather rapid growth, this is a valuable shade tree for mild-wintered regions.

103111 to 103150—Continued.

103133. *PITOSPORUM HETEROPHYLLUM* Franch. Pittosporaceae. Rock pittosporum.

C. 295. A spreading shrub, 3 to 6 feet high, native to Szechwan and Yunnan, where it grows on cliffs and in rocky places in the arid valleys. The ovate leaves are medium sized, and the light-yellow flowers are borne near the tips of the new branchlets.

For previous introduction see 99451.

103134. *PRIMULA FORRESTII* Balf. f. Primulaceae. Primrose.

B. 1. A handsome perennial primrose, native to northwestern Yunnan between 9,000 and 11,000 feet altitude, in dry sunny situations. The woody rootstock is said to live over 50 years, the large basal leaves are covered with glandular hairs, and the rich orange-yellow flowers are produced in large umbels.

For previous introduction see 100013.

103135. *PRIMULA MALVACEA* Franch. Primulaceae. Primrose.

B. 158. A primrose from the mountains of Yunnan, densely covered with short hairs; the bright-green leaves are about 3 inches long, and the thick scapes bear 2 or 3 umbels of reddish flowers.

For previous introduction see 100027.

103136. *PRUNUS* sp. Amygdalaceae.

C. 58. Judging from the seeds, this species is a cherry, closely related to *Prunus majestica*, which is a large handsome white-flowered tree.

103137 to 103139. *RHODODENDRON* spp. Ericaceae.

103137. *RHODODENDRON BULLATUM* Franch.

C. 33. A loosely branched shrub up to 8 feet high, native to Yunnan. The branchlets are densely and softly woolly, the elliptic-ovate leaves, 2 to 4 inches long, are puckered above and loosely woolly pubescent beneath, and the broadly tubular pink-tinged white flowers, 2 to 3 inches long, are borne in terminal clusters.

For previous introduction see 100889.

103138. *RHODODENDRON FASTIGIATUM* Franch.

C. 190. A low erect shrub with scaly branchlets, native to Yunnan. The elliptic-oblancoleat leaves, one-third inch long, are densely scaly on both surfaces, and the light-purple flowers, one-half inch long, are borne in terminal clusters of 4 or 5.

For previous introduction see 98463.

103139. *RHODODENDRON MADDENI* Hook. f.

C. 91. A shrub 6 to 8 feet high, with red-stemmed, dark-green leaves. The large delicately fragrant flowers, tinged with rose, are produced in threes at the ends of the branches. Native to the Himalayas.

For previous introduction see 97397.

103140. *ROSA SERTATA* Rolfe. Rosaceae. Garland rose.

C. 207. A low shrub, native to western China, with glaucous stems 5 feet high,

103111 to 103150—Continued.

armed with straight slender prickles, and leaves composed of 7 to 11 narrowly oblong leaflets. The solitary purple flowers, 2 to 3 inches across, are followed by deep-red, obovoid fruits.

103141. SOLANUM VERBASCIFOLIUM L. Solanaceae. Nightshade.

C. 130. A shrub or small tree up to 30 feet high, with ovate to lanceolate velvety tomentose leaves 6 to 10 inches long and small white flowers followed by yellowish fruits half an inch in diameter. Native to Mexico and established generally in the Tropics.

103142. SOPHORA sp. Fabaceae.

C. 172.

103143. THALICTRUM DELAVAYI Franch. Ranunculaceae. Meadowrue.

B. 127. A slender Chinese plant 2 to 3 feet high, with nodding purple flowers half an inch across.

For previous introduction see 95602.

103144. TROLLIUS PATULUS Salisb. Ranunculaceae.

B. 166. A low perennial herb, less than 1 foot high, native to southern Asia. The palmately dissected radical leaves are incised-dentate, and the large golden-yellow flowers are borne on one-flowered scapes.

103145. TSUGA YUNNANENSIS (Franch.) Masters. Pinaceae. Yunnan hemlock.

C. 196. A forest tree up to 150 feet high, with trunks 6 to 7 feet in diameter. The branchlets are covered with a rufous-gray pubescence, and the leaves, up to an inch long, are rounded at the apex and have white lines beneath. The small dull cones, 1 inch long, have fewer scales than those of *Tsuga chinensis*. Native to western China at 11,000 feet altitude.

For previous introduction see 100613.

103146. VACCINIUM DELAVAYI Franch. Vacciniaceae. Blueberry.

C. 35. A bushy shrub with grayish bark, leathery shining-green obovate leaves half an inch long, very small white flowers in small racemes, and small globose capsules. Native to Yunnan.

For previous introduction see 100615.

103147. (Undetermined.)

C. 76.

103148. (Undetermined.)

C. 93.

103149. (Undetermined.)

C. 129.

103150. (Undetermined.)

C. 258.

103151 to 103154. GOSSYPIUM HERBACEUM L. Malvaceae. Cotton.

From the Union of Soviet Socialist Republics. Seeds presented by A. Popov, head of the Department of New Cultures and Introduction, through Dr. N. I. Vavilov, director, Institute of Plant Industry, Leningrad. Received June 12, 1933.

From the Turkistan Plant Breeding Station; introduced for the use of Department specialists.

103151 to 103154—Continued.

103151. No. 107.

103153. No. 347.

103152. No. 260.

103154. No. 534.

103155 to 103173. Phoenicaceae.

Palm.

From Ceylon. Seeds presented by T. H. Parsons, curator, Royal Botanic Garden, Peradeniya. Received June 15, 1933.

103155. ARECA CONCINNA Thwaites.

A pinnate-leaved palm, 8 to 12 feet high, native to Ceylon. The subglabrous leaves, 3 to 4 feet long, are made up of lanceolate leaflets 2 feet long, and the orange-yellow spindle-shaped fruits are 1 to 2 inches long.

103156. ARECA TRIANDRA Roxb.

A graceful spineless palm, ultimately about 25 feet high, usually with several trunks which bear crowns of pinnate leaves 4 to 6 feet in length. The fruits, about the size of an olive, are orange-scarlet. Native to India.

For previous introduction see 98485.

103157. ARENGA ENGLERI Beccari.

A cluster palm with no trunk, which suckers from the ground and forms clumps 10 feet across. The pinnae are 16 inches long and over an inch wide and are fish-tail shaped. The red fruits are less than an inch in diameter.

For previous introduction see 99515.

103158. CALYPTROCALYX SPICATUS (Lam.) Blume.

A graceful palm, 30 to 40 feet high, with pinnate leaves and slender spikes of red fruits.

For previous introduction see 93401.

103159. CARYOTA MITIS LOUR. (C. sobolifera Mart.).

A palm, native to the Malay Peninsula, 15 to 20 feet high, which sends up suckers from the base. The pinnate leaves, 6 to 9 feet long, are divided into wedge-shaped segments, and the globular purple fruits are about the size of a cherry.

For previous introduction see 93402.

103160. CARYOTA URENS L. Toddy palm.

A palm up to 80 feet high and 18 inches in diameter, with twice palmately divided leaves 20 feet long by 12 feet wide, and the segments are curved and drooping. It is native to the Malay Archipelago.

For previous introduction see 99725.

103161. CHRYSALIDOCARPUS MADAGASCARIENSIS Beccari.

A graceful palm, native to Madagascar, about 15 feet high, with pinnate leaves 10 feet long, having the segments arranged in fascicles and appearing to be in threes, giving a triangular effect.

For previous introduction see 93408.

103162. PTYCHOSPERMA sp.

Palms of this genus have smooth, ringed trunks, crowned at the summit by a dense cluster of pinnate leaves.

103163. LINOMA ALBA (Bory) O. F. Cook (Dictyosperma alba Wendl.).

A small palm up to 30 feet high, native to tropical Africa. The pinnate

103155 to 103173—Continued.

leaves, which become 4 to 8 feet long, have whitish petioles and greenish white veins when the plants are young.

For previous introduction see 96484.

103164. *LINOMA ALBA* (Bory) O. F. Cook (*Dictyosperma alba* Wendl.).

Variety *aurea*. A form which differs from the type in having yellow or orange petioles on the young plants.

103165. *LIVISTONA DECIPIENS* Beccari.

A fan palm of medium height and a trunk diameter of about 16 inches. The leaves are made up of about 50 segments which are very weak at the tips, hanging as though wilted. It is native to South Australia.

103166. *LIVISTONA SUBGLOBOSA* (Hassk.) Mart.

A medium-sized palm, native to Java, with palmately divided leaves having segments 10 to 12 inches long, which are two-parted nearly to the base into linear pendulous lobes. The deep-violet fruits, one-half inch in diameter, are borne in a panicle on a spadix about a foot long.

For previous introduction see 93414.

103167. *LOROMA CUNNINGHAMIANA* (Wendl.) O. F. Cook (*Archontophoenix cunninghamiana* Wendl. and Drude).

A palm 70 to 80 feet high, native to Australia. The pinnately divided leaves, green on both sides, are several feet long, and the segments are acuminate and entire.

103168. *MARTINEZIA TRUNCATA* Brongn.

A palm, native to Bolivia, with a trunk up to 20 feet high, covered with brown-black spines. The pinnately divided spreading leaves, 4 to 5 feet long, are dark green with prominent veins.

103169. *ONCOSPERMA FILAMENTOSUM* Blume.

The *Nibung* is a cluster palm of great beauty which rises to a height of 50 feet and waves its pinnate leaves in the slightest breeze. Like its relative, *Oncosperma fasciculatum*, it is a spiny palm and therefore not suited to small gardens. Great clumps of this palm are wonderfully effective, however, in a proper setting. Native to the Malay Archipelago.

For previous introduction see 94091.

103170. *PINANGA KUHLII* Blume.

A stout rapid-growing palm native to the lower altitudes of western Java, becoming 16 to 25 feet high, with annulate stems 2 inches in diameter, reddish when young, and beautiful terminal fronds with pinnate blades 4 feet long and half as wide. This is one of the hardest species of *Pinanga* known.

For previous introduction see 97287.

103171. *PRYCHOCOCCUS PARADOXUS* (Scheff.) Beccari.

A slender palm, native to New Guinea, with a trunk 9 to 12 feet high, covered with dense white tomentum. The regularly pinnately divided leaves have 6 to 15 broadly lanceolate segments with obliquely truncate tips.

103155 to 103173—Continued.

103172. *TILMIA CARYOTAEOFOLIA* (H. B. K.) O. F. Cook (*Martinezia caryotaefolia* H. B. K.).

A beautiful slender straight-stemmed spiny-trunked palm up to 30 feet high, with graceful pinnate leaves and bright orange-scarlet fruits borne in drooping racemes.

For previous introduction see 102618.

103173. *VEITCHIA JOANNIS* Wendl.

A palm with pinnate leaves, native to the Fiji Islands. The leaf segments have a wide shallow notch at the apex, the sheath, petiole, and rachis are dull red, and the ellipsoid fruits, 2 to 3 inches long, are orange with a red base.

103174 to 103357.

From southwestern China and Tibet. Seeds collected by Dr. J. F. Rock, agricultural explorer, for the University of California Botanical Garden expedition, and presented through Dr. T. H. Goodspeed, Department of Botany, University of California, Berkeley, Calif. Received June 26, 1933.

103174. *ANDROMEDA* sp. Ericaceae.

No. 22335. From the Tjonatong Mountains, Upper Salwin River, Tsarung Province, southeastern Tibet, at 14,500 feet altitude. A shrub a foot high, found among rocks.

103175. *ANEMONE NARCISSIFOLIA* L. Ranunculaceae.

No. 23551. From Mount Moting, east of Atuntze, Yunnan, in alpine meadows at 11,500 feet altitude. A stout herbaceous perennial with stalky, 3- to 5-parted, deeply cut basal leaves, sessile involucre leaves, and an umbel of several white flowers an inch across, with yellow anthers. It is native to Europe and Asia.

For previous introduction see 100151.

103176 and 103177. *AQUILEGIA OXYSEPALA* Trautv. and Mey. Ranunculaceae. Columbine.

A hardy herbaceous perennial having more or less square flowers with four points; the flowers vary from purplish red to blue, yellow, and white.

For previous introduction see 68407.

103176. No. 23610. From Tsarong in the Kaakerbo Mountains, west of Dikeria and Yundshi, southeastern Tibet, in alpine meadows at 11,000 feet altitude.

103177. No. 24428. Collected north of Kulu in the Yetsi Mountains in Muli Territory, Szechwan, in a valley at 10,000 feet altitude. The flowers are purplish red.

103178. *ARTEMISIA* sp. Asteraceae.

No. 23541. From grassy slopes in the Mekong Valley in the Moting Mountains, east of Atuntze, Yunnan, at 9,000 feet altitude. An herb with yellow flowers.

103179. *ASPARAGUS* sp. *Convallaria*-ceae.

No. 24571. Collected between Muli and Kulu, Szechwan, at 9,000 feet altitude. A prostrate spreading shrub 2 feet high with pinkish flowers.

103174 to 103357—Continued.

103180 to 103186. *BERBERIS* spp. *Berberidaceae*.
Barberry.

Nos. 103180 and 103181 are from alpine meadows in the Moting Mountains, east of Atuntze, Yunnan.

103180. *BERBERIS* sp.

No. 23339. A shrub 3 feet high, found at 12,000 feet altitude.

103181. *BERBERIS* sp.

No. 23340. A shrub 4 to 5 feet high, found at 13,000 feet altitude.

103182. *BERBERIS* sp.

No. 24276. From Miturong, Muli Territory, southwestern Szechwan, east of the Yalung River on the Mutikonka Mountains (a hitherto unknown snow range), at 11,500 feet altitude. A shrub up to 5 feet high, found in spruce forests.

103183. *BERBERIS* sp.

No. 24392. From Mount Siga, west of the Yalung River and north of Karadi, at 11,000 feet altitude. A shrub 1 foot high, found in open scrub.

103184. *BERBERIS* sp.

No. 24416. From the Yetsi Mountains, north of Kulu, in Muli Territory, Szechwan, at 11,000 feet altitude. A shrub 3 to 4 feet high, found in pine forests.

103185. *BERBERIS* sp.

No. 24513. From alpine regions on the western slopes of Mount Mitzuga, Muli Territory, in southwestern Szechwan, at 13,500 feet altitude. A shrub 2 to 3 feet high, found among rocks.

103186. *BERBERIS* sp.

No. 25310. From Mount Haba, north of the Yangtze loop, the third peak of the Likiang Snow Range, Bårdär, at 12,000 feet altitude. A shrub 5 to 6 feet high, found in open rocky regions.

103187. *ADENOPHORA COELESTRIS* Diels. *Campanulaceae*.

No. 24594. From Mount Gibboth, southwestern Szechwan, near the Yunnan border, in alpine meadows between 11,500 and 12,000 feet altitude.

103188 to 103191. *CASSIOPE* spp. *Ericaceae*.

103188. *CASSIOPE SELAGINOIDES* Hook. f. and Thoms.

No. 21935. A shrub with white flowers found in alpine regions among scrub at 15,000 feet altitude on Mount Kenichunpo, Tsarung Province, southeastern Tibet.

103189. *CASSIOPE* sp.

No. 22173. From alpine regions at the upper headwaters of the Eastern Irrawaddy River in southeastern Tibet at 14,000 feet altitude. A shrub with white flowers found on mossy banks among rhododendron scrub.

103190. *CASSIOPE* sp.

No. 22687. From the Solola, Tsarung Province, southeastern Tibet, at 14,500 feet altitude. A shrub with white flowers found on rocks and among shrubs.

103191. *CASSIOPE* sp.

No. 23554. From Mount Moting, east of Atuntze, Yunnan, at 14,500 feet

103174 to 103357—Continued.

altitude. A shrub with white flowers found on alpine ridges under rhododendron scrub.

103192. *CEPHALOTAXUS* sp. *Taxaceae*.

No. 23289. From Mount Fuchuan, west of the Mekong-Salwin Divide, west of Weihsü, Szechwan, between 9,500 and 10,000 feet altitude. A tree 30 to 40 feet high.

103193. *CEPHALOTAXUS* sp. *Taxaceae*.

No. 25420. From Mount Laochun, southwest of Shiku and the Yangtze. A tree 60 to 80 feet high, found in open forest at 10,500 feet altitude.

103194 to 103196. *CLEMATIS* spp. *Ranunculaceae*.

103194 and 103195. *CLEMATIS MONTANA* Buch.-Ham. *Anemone clematis*.

An ornamental vigorous climber, 30 feet or more in length, with solitary, pure-white flowers. It is native to the Himalayan region.

103194. No. 22284. From the Solola, Tsarung Province, southeastern Tibet; found along water-courses in forests at 11,500 feet altitude.

103195. No. 23552. From Mount Moting, east of Atuntze, Yunnan, in fir forests at 12,000 feet altitude.

103196. *CLEMATIS* sp.

No. 23623. Collected in the Kaakerbo Mountains, southeastern Tibet, at Tsarung, west of Dikerla and Yundshi. A shrub 1 to 2 feet high with white flowers, found along streams at 9,000 feet altitude.

103197 to 103199. *CODONOPSIS* spp. *Campanulaceae*.

Nos. 103197 and 103198 were collected on Mount Moting, east of Atuntze, Yunnan, in alpine meadows.

103197. *CODONOPSIS BULLEYANA* Forrest.

No. 23442. A malodorous perennial about a foot high with an ascending stem, hairy heart-shaped leaves 4 to 6 inches long, and pale lavender-blue flowers nearly half an inch long, found at 14,000 feet altitude. Native to southwestern China.

For previous introduction see 100163.

103198. *CODONOPSIS* sp.

No. 23443. A malodorous perennial with pale-blue flowers found at 12,500 feet altitude.

103199. *CODONOPSIS* sp.

No. 24596. From Mount Gibboth, southwestern Szechwan, near the Yunnan border, at 13,000 feet altitude. An herb with purple flowers, found in meadows.

103200 to 103210. *COTONEASTER* spp. *Malaceae*.

103200. *COTONEASTER DIVARICATA* Rehd. and Wils.

No. 22336. From the Tjonatong Mountains on the Upper Salwin River, Tsarung Province, southeastern Tibet, at 14,000 feet altitude. A shrub up to

103174 to 103357—Continued.

6 feet high, with gracefully reflexed branches, shining green leaves, paler beneath, and small rose-colored flowers. The red fruits are ovoid. Native to southwestern China.

For previous introduction see 53675.

103201. *COTONEASTER SALICIFOLIA* Franch. Willowleaf cotoneaster.

No. 22554. From the northern slopes of Mount Kenichunpo, west of the Salwin River in the Siktung Mountains, Tsarung Province, southeastern Tibet, at 11,000 feet altitude, in open scrub. A half-evergreen, or, in mild climates, evergreen shrub up to 15 feet high, with slender spreading branches, ovate-lanceolate or elliptic-oblong acute cuneate leaves up to over an inch long, white tomentose beneath; small white flowers, and bright-red roundish berries one-fifth of an inch in diameter. Native to western China.

For previous introduction see 102209.

103202. *COTONEASTER* sp.

No. 22631. From the Solola, Tsarung Province, southeastern Tibet. A shrub 4 feet high, found among boulders at 13,500 feet altitude.

103203. *COTONEASTER ADPRESSA* Bois.

No. 23377. From Mount Motung, east of Atuntze, Yunnan, at 14,000 feet altitude. A spreading shrub, usually less than a foot high, which forms a clump several feet in diameter with the stems rooting easily where they touch the ground. The solitary flowers, with pink-tipped petals, are followed by bright-red fruits.

For previous introduction see 55080.

103204. *COTONEASTER DIVARICATA* Rehd. and Wils.

No. 24308. From Miturong, Mull Territory, east of the Yalung River on the Mutikonka Mountains (a hitherto unknown snow range) in southwestern Szechwan; in open places at 11,000 feet altitude.

For previous introduction and description see 103200.

103205. *COTONEASTER* sp.

No. 24367. From south of Dzempe Sheren in the Sagi Valley, Szechwan, in open forests at 12,000 feet altitude. A shrub 4 to 5 feet high with pinkish flowers.

Nos. 103206 and 103207 were collected on Mount Siga, west of the Yalung River and north of Karadi.

103206. *COTONEASTER* sp.

No. 24386. A shrub 3 to 4 feet high with pinkish flowers found on a forested slope at 11,000 feet altitude.

103207. *COTONEASTER* sp.

No. 24389. A spreading shrub with pinkish flowers found among rocks and boulders at 12,500 feet altitude.

103208. *COTONEASTER HORIZONTALIS* PERPUSILLA C. Schneid.

No. 24554. Found at 14,500 feet altitude on the western slopes of Mount Mitzuga, Mull Territory, Szechwan. An ornamental prostrate shrub well adapted for rockeries. It has a low

103174 to 103357—Continued.

growth and develops an abundance of almost horizontal branches. The leaves are rounded oval, glabrous, and less than one-third of an inch long. The flowers are pinkish, and the abundant bright-red ovoid fruits are one of the most attractive features of the plant.

For previous introduction see 45706.

103209. *COTONEASTER RACEMIFLORA* SOONGARICA C. Schneid.

No. 24560. Between Mull and Kulu, Szechwan, on open mountain slopes at 10,000 feet altitude. An erect shrub up to 4 feet high, but sometimes prostrate. The leaves are oval and usually somewhat obtuse, and the small white flowers are followed by red fruits.

For previous introduction see 44083.

103210. *COTONEASTER* sp.

No. 25353. From the lower slopes of Mount Yulung, Likiang Snow Range, Yunnan, at 9,500 feet altitude. A shrub 5 to 6 feet high with white flowers.

103211. *DAPHNE TANGUTICA* Maxim. Thymelaecaeae.

No. 24488. From Mount Kanshu, on the trail to the Leirong Mountains, southwestern Szechwan, in fir forests at 12,500 feet altitude. A low densely branched evergreen shrub of compact sturdy habit; the young shoots are hairy, and the leathery oval to obovate leaves, 1 to 2 inches long, are densely arranged toward the end of the twigs. The flowers, white with a violet tinge, are borne in a crowded cluster on a short conspicuously brown-felted stalk. The berries are bright red.

103212. *AQUILEGIA OXYSEPALA* Trautv. and Mey. Ranunculaceae.

No. 22253. From the Solola, Tsarung Province, southeastern Tibet, in alpine meadows at 14,000 feet altitude. A very early flowering herbaceous perennial 2 to 3 feet high, with large blue, yellow, and white flowers. The spurs are short and are bent inward.

For previous introduction see 92045.

103213 to 103217. *DELPHINIUM* spp. Ranunculaceae. Larkspur.

103213. *DELPHINIUM* sp.

No. 22373. From Mount Wulla, a high mountain east of the Salwin River and north of Aulaka, southeastern Tibet, at 13,000 feet altitude. Blue flowers; found in alpine meadows.

Nos. 103214 to 103217 were collected on Mount Motung, east of Atuntze, Yunnan.

103214. *DELPHINIUM YUNNANENSIS* Franch.

No. 23421. A perennial alpine with a simple or branched stem and pale-green, finely pubescent leaves that are divided to the middle into five obovate incised segments. The calyx is intensely blue while the petals are bluish violet, the entire flower being four-fifths of an inch long.

103215. *DELPHINIUM* sp.

No. 23444. Pale-lavender flowers; from 13,500 feet altitude.

103174 to 103357—Continued.

103216. DELPHINIUM LIKIANGENSIS Franch.

No. 23457. One of the finest larkspurs; the dark-green, glossy leaves are in cushionlike rosettes; the large rich-blue flowers are an inch across, and there are several spikes on a plant at one time. Found in alpine meadows at 13,000 feet altitude.

For previous introduction see 100184.

103217. DELPHINIUM sp.

No. 23583. Blue flowers collected at 11,000 feet altitude.

103218. DIPelta YUNNANENSIS Franch. Caprifoliaceae.

No. 24576. Collected between Muli and Kulu, Szechwan, at 9,000 feet altitude. A shrub from 5 to 15 feet high, with opposite entire lanceolate leaves 3 to 6 inches long and leafy racemes of two-tipped tubular-campanulate pinkish to purple flowers having shieldlike floral bracts.

For previous introduction see 97601.

103219. GAULTHERIA sp. Ericaceae.

No. 22057. From Mount Kenichunpo, west of Champutong, at 12,000 feet altitude. A shrub 6 to 8 feet high with pink flowers.

103220. HEMEROCALLIS sp. Liliaceae. Daylily.

No. 24558. Collected between Muli and Kulu, Szechwan, in alpine forest at 11,000 feet altitude. A daylily with orange-yellow flowers.

103221. ILEX PERNYI Franch. Aquifoliaceae. Holly.

No. 24556. Collected between Muli and Kulu, Szechwan, in valleys debouching into the Litang River, at 9,000 feet altitude. A dense-growing evergreen holly of very dwarf and compact habit, with small dark-green spiny leaves, squarish at the base, and red berries. It is probably allied to *Ilex cornuta* and was first discovered by Père Paul Ferny in western China.

For previous introduction see 92776.

103222 to 103233. IRIS spp. Iridaceae.**103222. IRIS** sp.

No. 22254. From the Solola, Tsarung Province, southeastern Tibet. An iris with deep purple-blue flowers, found in alpine meadows at 12,500 feet altitude.

Nos. 103223 and 103224 were collected on Mount Moting, east of Atuntze, Yunnan, in alpine meadows.

103223. IRIS sp.

No. 23361. An iris with blue flowers, found between 12,500 and 13,000 feet altitude.

103224. IRIS sp.

No. 23374. An iris with bluish-purple flowers, found at 11,500 feet altitude.

Nos. 103225 and 103226 were collected at Miturong, Muli Territory, east of the Yalung River, on the Mutikonka

103174 to 103357—Continued.

Mountains (a hitherto unknown snow range) in southwestern Szechwan, at 14,000 feet altitude, in alpine meadows.

103225. IRIS sp.

No. 24303. An iris with deep-blue flowers.

103226. IRIS sp.

No. 24318. An iris with purple-spotted yellow flowers.

Nos. 103227 to 103229 were collected in Muli Territory, at Dzempe Sheren, west of Wuata Gomba, Szechwan, between 12,000 and 13,500 feet altitude, in alpine meadows.

103227. IRIS sp.

No. 24324. An iris with deep purplish-blue flowers; found in wet meadows.

103228. IRIS sp.

No. 24331. An iris with pale-blue flowers.

103229. IRIS sp.

No. 24335. An iris with dark-purple flowers.

Nos. 103230 and 103231 were collected in alpine meadows at 13,000 feet altitude, south of Dzempe Sheren, in the Sagi Valley, Szechwan.

103230. IRIS sp.

No. 24355. An iris with dark purple-blue flowers.

103231. IRIS sp.

No. 24375. An iris with dark-blue flowers.

103232. IRIS sp.

No. 24451. From the Yetsi Mountains, north of Kulu, Muli Territory, Szechwan, in alpine meadows at 14,500 feet altitude; an iris with pale-blue flowers.

103233. IRIS sp.

No. 25279. From meadows at Chungtien, west of the Hsiao Chungtien Mountains between 11,500 and 12,000 feet altitude. An iris with dark-blue flowers.

103234. JUNIPERUS sp. Pinaceae. Juniper.

No. 22300. From the Solola, Tsarung Province, southeastern Tibet. A shrub spreading from the base, 4 to 5 feet tall.

103235. LARIX POTANINI Batal. Pinaceae. Chinese larch.

No. 25270. From the mountains west of Hsiao Chungtien, Yunnan, at 15,000 feet altitude. A deciduous tree 75 to 100 feet high, native to western China. The pendulous branchlets are orange or red brown, the slender compressed gray-green leaves are about 1 inch long, and the ovoid-oblong cones, 2 inches long, are violet purple, changing to brown.

103236. LARIX sp. Pinaceae. Larch.

No. 23404. From Mount Moting, east of Atuntze, Yunnan; a tree 30 to 40 feet high found in alpine regions at 15,000 feet altitude.

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103237. *LIGUSTRUM* sp. Oleaceae. Privet.

No. 24405. From Mount Siga, west of the Yalung River, north of Karadi, Szechwan. A shrub 4 to 5 feet high with white flowers, found on forested slopes at 14,000 feet altitude.

103238 to 103250. *LILIUM* spp. Liliaceae. Lily.

Nos. 103238 and 103239 were collected on grassy slopes at 12,000 feet altitude on Mount Kenichunpo.

103238. *LILIUM* sp.

No. 21933. A lily 3 feet tall with white flowers.

103239. *LILIUM* sp.

No. 21937. A lily with purplish-red flowers.

103240. *LILIUM* sp.

No. 22152. From the northern slopes of Mount Kenichunpo, north of Sikitung on the Upper Salwin River, Tsarung Province, southeastern Tibet. A lily with red flowers, found in alpine meadows at 13,000 feet altitude.

103241. *LILIUM TALIENSE* Franch.

No. 22264. From alpine meadows at 12,000 feet altitude in the Solola, Tsarung Province, southeastern Tibet. A martagon lily with stout gray-green stems, 3 to 5 feet high, that are clothed with dense white scabrid pubescence. The linear to lanceolate leaves are 2 to 4 inches long, and the fragrant nodding purple-spotted white flowers, 2 inches long, are in subverticillate clusters of 2 to 12.

For previous introduction see 99902.

103242. *LILIUM* sp.

No. 22542-I.

103243. *LILIUM* sp.

No. 22542-II.

103244. *LILIUM WILLMOTTIAE* Wilson.

No. 23475. From Mount Moting, east of Atuntze, Yunnan. A lily with orange-red flowers, spotted with black, found in pine forests at 10,000 feet altitude.

103245 and 103246. *LILIUM TALIENSE* Franch.

For previous introduction and description see 103241.

103245. No. 23537. From Mount Moting, east of Atuntze, Yunnan, on dry slopes in pine forests at 9,500 feet altitude. A form with pink flowers.

103246. No. 23613. From the Kaakerbo Mountains in southeastern Tibet, west of Dikerla and Yundshi, in alpine meadows at 12,000 feet altitude. A form with pinkish flowers.

103247. *LILIUM HYACINTHINUM* Wilson.

No. 24316. From Miturong, Mull Territory, east of the Yalung River on the Mutikonka Mountains (a hitherto unknown snow range), in southwestern Szechwan at 12,000 feet altitude, among scrub. A lily with stout erect shining-green stems 3 to 4 feet tall and

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scattered oblong-lanceolate leaves 6 to 8 inches long; the slightly fragrant, purple-lavender, funnel-shaped flowers, 1 to 2 inches long, are borne in racemes of 12 to 24.

For previous introduction see 99896.

103248. *NOMOCHARIS LOPHOPHORA* (Bur. and Franch.) Balf. f.

No. 24377. From alpine meadows at 12,000 feet altitude on Mount Siga, west of the Yalung River and north of Karadi, Szechwan.

For previous introduction and description see 102838.

Nos. 103249 and 103250 were collected on Mount Kintzu, Daboyunulu, Labako, west of Shiku, at 13,000 feet altitude.

103249. *LILIUM HYACINTHINUM* Wilson.

No. 25457. Collected in fir forests.

For previous introduction and description see 103247.

103250. *NOMOCHARIS LOPHOPHORA* (Bur. and Franch.) Balf. f.

No. 25460. Collected in alpine meadows.

For previous introduction and description see 103248.

103251 to 103258. *NOMOCHARIS* spp. Liliaceae.103251. *NOMOCHARIS* sp.

No. 22176. From the northern slopes of Mount Kenichunpo in alpine regions at the headwaters of the Eastern Irrawaddy, southeastern Tibet, at 12,500 feet altitude.

For previous introduction and description see 102840.

Nos. 103252 to 103254 were collected in the Tjonatong Mountains on the Upper Salwin River, Tsarung Province, southeastern Tibet.

103252. *NOMOCHARIS* sp.

No. 22309. For previous introduction see 102841.

103253. *NOMOCHARIS* sp.

No. 22310. For previous introduction see 102842.

103254. *NOMOCHARIS* sp.

No. 22311. For previous introduction see 102843.

103255. *NOMOCHARIS* sp.

No. 23256. For previous introduction and description see 102844.

Nos. 103256 and 103257 were collected on Mount Kaakerbo in alpine meadows at 12,500 feet altitude.

103256. *NOMOCHARIS* sp.

No. 23756. For previous introduction and description see 102845.

103257. *NOMOCHARIS* sp.

No. 23670. For previous introduction and description see 102846.

103258. *NOMOCHARIS* sp.

No. 25456. Collected on Mount Kintzu, Labako, northwestern Yun-

103174 to 103357—Continued.

nan, China, near fir forests at 12,500 feet altitude.

For previous introduction and description see 102847.

103259. *PAEONIA DELAVAYI* Franch. Ranunculaceae. Peony.

No. 25312. From Mount Haba, north of the Yangtze loop, third peak of the Likiang Snow Range, Bårdär, in meadows and outskirts of spruce forests at 11,000 feet altitude. A very attractive vigorous shrub 4 feet high with deep-crimson flowers 3 inches in diameter.

For previous introduction see 100576.

103260. *PICEA* sp. Pinaceae. Spruce.

No. 25333. From the eastern slopes of Maboang Vatzé, Likiang Snow Range, at 12,000 feet altitude. A tree between 60 and 80 feet high.

103261 to 103263. *PIERIS* spp. Ericaceae.

103261. *PIERIS* sp.

No. 22036. From scrub forest on the northern slopes of Mount Kenichunpo, north of Sikitung, Upper Salwin River, Tsarung Province, in southeastern Tibet, at 11,500 feet altitude. A shrub with large leaves and white flowers.

103262 and 103263. *PIERIS DOYONENSIS* Hand.-Mez.

An upright shrub 4 to 5 feet high, with stout branches and rounded elliptic leaves 1 to 4 inches long. The white tubular-campanulate flowers, one-half inch long, are in small terminal racemes. Native to Yunnan, China.

103262. No. 24279. From Miturong, Mull Territory, east of the Yalung River on the Mutikonka Mountains, in southwestern Szechwan, at 11,500 feet altitude.

103263. No. 24400. From Mount Siga, west of the Yalung River, north of Karadi, Szechwan, at 12,500 feet altitude.

103264 to 103275. *POTENTILLA* spp. Rosaceae. Cinquefoil.

103264. *POTENTILLA MICROPHYLLA* DEPRESSA Wall.

No. 21971. From the northern slopes of Mount Kenichunpo, north of Sikitung, Upper Salwin River, Tsarung Province, southeastern Tibet, at 14,000 feet altitude, among crags. A densely caespitose variety with shorter stems and yellow flowers.

103265. *POTENTILLA CURVISECTA* Hook. f.

No. 22274. From the Solola, Tsarung Province, southeastern Tibet, among scree at 14,000 feet altitude. An alpine perennial with trifoliate leaves 2 to 3 inches long, the leaflets hairy, leathery, and dentate. The small, inconspicuous flowers are on slender wiry flowering stems 2 to 3 inches long. Native to the Himalayan region from 12,000 to 14,500 feet altitude.

Nos. 103266 and 103267 were collected in the Tjonatong Mountains, on the Upper Salwin River, Tsarung Province, southeastern Tibet, among boulders at 14,000 feet altitude.

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103266. *POTENTILLA KRYLOVIANA* Wolf.

No. 22320. A caespitose alpine perennial 3 to 6 inches high with small compound leaves of 2 or 3 pairs of obovate serrate leaflets, and long-stemmed yellow flowers half an inch across. Native to the Altai Mountains.

103267. *POTENTILLA STENOPHYLLA* (Franch.) Diels.

No. 22321. An alpine perennial 3 to 4 inches high, with a thick rhizome, pinnate leaves 2 to 3 inches long, and orange-yellow flowers on scapes 4 inches high.

For previous introduction see 100218.

Nos. 103268 and 103269 were collected on Mount Wullia, a high mountain east of the Salwin River and north of Alulaka, southeastern Tibet.

103268. *POTENTILLA ERIOCARPOIDES* Krause.

No. 22358. A low bushy perennial, 2 to 3 inches high, with hairy ternate leaves, the divisions being obovate-cuneate and coarsely incised. The yellow flowers are over half an inch across. Found on crags at 15,000 feet altitude. Native to eastern Tibet.

103269. *POTENTILLA CORIANDRIFOLIA* D. Don.

No. 23266. From swampy alpine meadows at 14,500 feet altitude. A tufted herb 4 inches in diameter with white flowers which have dark-red centers. Native to the Himalayan region.

For previous introduction see 100215.

Nos. 103270 to 103272 were collected west of Weihsü, west of the Mekong-Salwin Divide on Mount Fuchuan.

103270 and 103271. *POTENTILLA FRUTICOSA* DAVURICA (Nestl.) Seringe.

A dwarf compact shrub from 2 to 3 feet high, with small leaves having lustrous brown stipules tipped with a tuft of conspicuous hairs. The solitary flowers are about an inch across. Found in meadows between 12,500 and 13,000 feet altitude.

For previous introduction see 97997.

103270. No. 23271. Pale cream-colored flowers.

103271. No. 23272. Yellow flowers.

103272. *POTENTILLA STENOPHYLLA* (Franch.) Diels.

No. 23281. For previous introduction and description see 103267.

Nos. 103273 to 103276 were collected on Mount Moting, east of Atuntze, Yunnan.

103273. *POTENTILLA ERIOCARPOIDES* Krause.

No. 23354. Collected at 13,000 feet altitude.

For previous introduction and description see 103268.

103274. *POTENTILLA SIBBALDI* Haller f.

No. 23393. From alpine meadows at 14,000 feet altitude. A low herbaceous perennial which forms a dense spreading tuft, with trifoliate leaves, cuneate to dentate leaflets, and small yellow flowers.

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103275. *POTENTILLA CURVISECTA* Hook. f.

No. 23429. Found among boulders at 14,500 feet altitude.

For previous introduction and description see 103265.

103276. *SAXIFRAGA HIRCULUS ALPINA* Engl. Saxifragaceae.

No. 23446. A Chinese variety with yellow flowers and broader petals, collected at 14,000 feet altitude. The typical form is an alpine perennial, 6 inches high with yellow flowers, native to the mountains of central and northern Europe.

Nos. 103277 and 103278 are from Mount Kanshu, on the trail to the Leirong Mountains, Muli Territory, Szechwan, in meadows between 13,000 and 13,500 feet altitude.

103277. *COLUMBA ELEGANS IMBRICATA* Cardot. Rosaceae.

No. 24482. An alpine perennial with a basal rosette of pinnate leaves 3 to 4 inches long, with the leaflets much crowded and imbricate. The yellow flowers, nearly an inch across, are on stems up to 8 inches high. Native to eastern Tibet.

103278. *POTENTILLA CURVISECTA* Hook. f. Rosaceae. Cinquefoil.

No. 24500. For previous introduction and description see 103265.

103279 to 103287. *PRUNUS* spp. Amygdalaceae.

103279. *PRUNUS* sp.

No. 22124. From the northern slopes of Mount Kenichunpo, north of Sikitung, Upper Salwin River, Tsarung Province, southeastern Tibet, at 12,500 feet altitude. A tree 15 to 20 feet high with white flowers.

103280. *PRUNUS* sp.

No. 22241. From the Solola, Tsarung Province, southeastern Tibet, at 14,500 feet altitude. A shrub 3 to 4 feet high with pink flowers; found among crags.

103281. *PRUNUS* sp.

No. 22396. From Wulila, a high mountain east of the Salwin River and north of Alulaka, southeastern Tibet, at 14,000 feet altitude. A wild cherry 3 to 5 feet high; flowers not seen.

103282. *PRUNUS* sp.

No. 23154.

103283. *PRUNUS* sp.

No. 23352. From Mount Moting, east of Atuntze, Yunnan, at 13,000 feet altitude. A shrub 6 to 10 feet high; flowers not seen.

103284. *PRUNUS* sp.

No. 24419. From the Yetsi Mountains, north of Kulu, Muli Territory, Szechwan, at 13,000 feet altitude. A shrub or small tree 6 to 10 feet high with pink flowers, found in alpine meadows.

103285. *PRUNUS* sp.

No. 24448. From the Kulu Mountains in Muli Territory, Szechwan, in

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fir forests at 13,000 feet altitude. A shrub 8 to 10 feet high with white flowers.

103286. *PRUNUS* sp.

No. 25266. From the mountains west of Hsiao Chungtien, northwestern Yunnan, in a spruce forest at 11,500 feet altitude. A shrub or tree 25 feet high with pinkish flowers.

103287. *PRUNUS SALICINA* Lindl.

Japanese plum.

No. 25363. From Mount Yulung, in the Likang Snow Range, between 10,500 and 11,000 feet altitude, growing among pines and rhododendrons. A tree 10 to 15 feet high with white flowers.

103288 to 103290. *MALUS BACCATA HIMALAICA* (Maxim.) C. Schneid. Malaceae. Pear.

A variety with broadly elliptic, coarsely serrate leaves, pubescent beneath.

103288. No. 24427. From the Yetsi Valley, north of Kulu, in Muli Territory, Szechwan, at 10,000 feet altitude. A tree 15 to 20 feet high with white flowers.

103289. No. 25284. From the Chungtien Plain, west of Hsiao Chungtien, northwestern Yunnan, along streams at 11,500 feet altitude. A tree 30 feet high with white flowers.

103290. No. 25366. From the meadows of Gobo, on Mount Yulung, Likang Snow Range, east of Likang, at 9,500 feet altitude. A tree 25 to 30 feet high.

103291 to 103300. *RIBES* spp. Grossulariaceae.

Nos. 103291 and 103292 were collected in fir forests on Mount Kenichunpo between 12,000 and 12,500 feet altitude.

103291. *RIBES* sp.

No. 21998. A shrub 6 to 8 feet high with red flowers.

103292. *RIBES* sp.

No. 22008. A shrub 5 to 10 feet high with red flowers.

103293. *RIBES* sp.

No. 24450. From the Yetsi Mountains, north of Kulu, Muli Territory, Szechwan, at 13,000 feet altitude. A shrub 5 to 6 feet high with reddish flowers.

103294. *RIBES* sp.

No. 24520. From the western slopes of Mount Mitzuga, Muli Territory, southwestern Szechwan, at 12,500 feet altitude. A shrub 2 to 4 feet high with reddish flowers.

103295. *RIBES* sp.

No. 24585. From Mount Gibboth, southwestern Szechwan, near the Yunnan border, in spruce forests at 11,000 feet altitude. A shrub 4 to 5 feet high with purple flowers.

103296. *RIBES* sp.

No. 25286. From Mount Haba, north of the Yangtze loop, the third peak of the Likang Snow Range, Bär-

103174 to 103357—Continued.

där, in fir forests at 13,000 altitude. A shrub 10 to 15 feet high with red flowers.

Nos. 103297 to 103299 were collected on Mount Yulung, on the eastern slopes of the Likang Snow Range, northwestern Yunnan, in fir forests between 12,000 and 12,500 feet altitude.

103297. *RIBES* sp.

No. 25336. A shrub 6 to 7 feet high with reddish flowers.

103298. *RIBES* sp.

No. 25347. A shrub 6 feet high with yellow flowers, collected at Sabaloko.

103299. *RIBES* sp.

No. 25358. A shrub 6 to 8 feet high with red flowers.

103300. *RIBES* sp.

No. 25385. From the outskirts of spruce forests on Mount Yulung, Likang Snow Range, northwestern Yunnan, between 10,500 and 11,000 feet altitude. A shrub 5 to 6 feet high with black fruits.

103301 to 103317. *ROSA* spp. *Rosaceae*.

Rose.

103301. *ROSA ROXBURGHII* Tratt.

Roxburgh rose.

No. 22240. From the Solola, in Tsarung Province, southeastern Tibet, in a spruce forest at 12,000 feet altitude. A shrub 6 to 12 feet high with pale-pink flowers, followed by edible yellow-brown fruits.

For previous introduction see 99214.

103302. *ROSA* sp.

No. 22439. From the forests of Tjonatong, at 10,000 feet altitude, on Mount Wullia, east of the Salwin River and north of Alulaka, southeastern Tibet. A shrub 5 to 6 feet high; flowers not seen.

Nos. 103303 and 103304 were collected on Mount Moting, east of Atunze, Yunnan.

103303. *ROSA* sp.

No. 23355. A shrub 6 to 10 feet high; flowers not seen; collected at 13,000 feet altitude.

103304. (Undetermined.)

No. 23519. From lateral water-courses on the banks of the Mekong River at 7,800 feet altitude.

Nos. 103305 and 103306 were collected in the Kaakerbo Mountains, west of Dikerla and Yundshi, Tsarung Province, southeastern Tibet, in open regions at 13,000 feet altitude.

103305. *ROSA* sp.

No. 23616. A shrub with white flowers.

103306. *ROSA MOYESII* Hemsl. and Wils.

No. 23659. A strikingly handsome shrub from 4 to 5 feet high with scattered, short straight prickles on the branches. The flowers vary from dark blood red to pink and are followed by orange-red, narrowly ovoid fruits 2

103174 to 103357—Continued.

inches or more in length. It is native to western China.

For previous introduction see 63369.

103307. *ROSA WILLMOTTIAE* Hemsl.

Willmot rose.

No. 24292. From Miturong, Muli Territory, east of the Yalung River on the Mutikonka Mountains, in southwestern Szechwan, in a spruce forest at 11,000 feet altitude. A shrub 3 to 4 feet high with small pink flowers.

For previous introduction see 93082.

Nos. 103308 and 103309 were collected in forests south of Dzempé Sheren, in the Sagi Valley.

103308. *ROSA GRACILIFLOBA* Rehd. and Wils.

No. 24376. A slender-branched shrub 6 to 12 feet high, with membranous leaves composed of 9 to 11 oval or elliptic light-green leaflets up to 1 inch long and red to pink flowers over an inch across, solitary at the ends of the branchlets. Collected at 13,000 feet altitude. Native to western Szechwan, China.

103309. *ROSA* sp.

No. 24391. A shrub 6 to 8 feet high with white flowers, found at 11,000 feet altitude.

103310. *ROSA* sp.

No. 24449. A shrub 5 feet high with white flowers, found at 13,000 feet altitude in a fir forest in the Yetai Mountains, north of Kulu, Muli Territory, Szechwan.

103311. *ROSA GRACILIFLOBA* Rehd. and Wils.

No. 24508. From Mount Kanshu, on the trail to the Leirong Mountains, Muli Territory, Szechwan, in a fir forest at 12,000 feet altitude.

For previous introduction and description see 103308.

Nos. 103312 and 103313 were collected between Muli and Kulu, Szechwan.

103312. *ROSA* sp.

No. 24557. A shrub 6 to 8 feet high with white flowers, found along streams at 9,800 feet altitude.

103313. *ROSA* sp.

No. 24561. A spreading shrub with white flowers, found at 9,000 feet altitude.

103314. *ROSA* sp.

No. 24600. From Mount Gibboth, southwestern Szechwan, near the Yunnan border, in a pine forest at 10,000 feet altitude. A shrub 2 to 3 feet high with white flowers.

Nos. 103315 and 103316 were collected on Mount Haba, north of the Yangtze loop, third peak of the Likang Snow Range, Bårdär, in a fir forest at 12,000 feet altitude.

103315. *ROSA* sp.

No. 25285. A shrub 6 to 8 feet high with white flowers.

103174 to 103357—Continued.

103316. *ROSA GRACILIFLORA* Rehd. and Wils.

No. 25318. For previous introduction and description see 103311.

103317. *ROSA* sp.

No. 25397. From Mount Yunlu, southeast of Likiang, Yangtze-Mekong watershed, in fir forests at 12,500 feet altitude. A shrub 6 feet high with white flowers.

103318 to 103322. *RUBUS* spp. Rosaceae.

103318. *RUBUS* sp.

No. 22630. From the Solola, in Tsarung Province, southeastern Tibet, in a larch and fir forest at 12,500 feet altitude. A shrub with yellow fruits.

103319. *RUBUS STEPHANANDRA* Lev.

No. 23275. Variety *chinensis*. From Mount Fuchuan, west of the Mekong-Salwin Divide, west of Weihsü, Szechwan, on the outskirts of forests at 11,500 feet altitude. A shrub 4 to 5 feet high, armed with slender reflexed thorns. The trifoliate pubescent leaves have small ovate doubly dentate leaflets, and the small white flowers are solitary. Native to Szechwan.

103320. *RUBUS* sp.

No. 24429. From alpine meadows at 13,000 feet altitude in the Yetzi Mountains, north of Kulu, Muli Territory, Szechwan. A shrub 2 feet high with white flowers.

103321. *RUBUS* sp.

No. 25322. From a valley at 10,000 feet altitude on Mount Yulung, Likiang Snow Range. A woody climber with fragrant yellow flowers.

103322. *RUBUS* sp.

No. 25413. From Mount Laochun, southwest of Shiku and the Yangtze, in canebrake at 12,000 feet altitude. A shrub 2½ feet high with pink flowers.

103323 to 103326. *SALVIA* spp. Menthaceae. Sage.

103323. *SALVIA HIANIS* Royle.

No. 22378. From alpine meadows at 14,500 feet altitude on Mount Wulila, east of the Salwin River and north of Alulaka, southeastern Tibet. A viscid-hairy perennial herb 2 to 3 feet high, with cordate toothed leaves, 4 to 7 inches long, on petioles often 10 inches long. The blue flowers, 1 to 2 inches long, with very inflated throats, are borne in large spreading panicles.

For previous introduction see 101794.

103324. *SALVIA* sp.

No. 23273. From alpine meadows at 13,000 feet altitude on Mount Fuchuan, west of the Mekong-Salwin Divide, west of Weihsü, Szechwan. A perennial herb with purplish-pink flowers.

103325. *SALVIA* sp.

No. 23609. From alpine meadows between 13,000 and 14,000 feet in the Kaakerbo Mountains in southeastern Tibet, west of Dikerla and Yundshi. A perennial herb with purple flowers.

103174 to 103357—Continued.

103326. *SALVIA HIANIS* Royle.

No. 25316. From Mount Haba, north of the Yangtze loop, third peak of the Likiang Snow Range, Bårdär, at 13,500 feet altitude, in a fir forest.

For previous introduction and description see 103323.

103327 to 103331. *SILENE* spp. Silenaceae. Catchfly.

Nos. 103327 and 103328 were collected on Mount Moting, east of Atuntze, Yunnan.

103327. *SILENE* sp.

No. 23423. An herb with purple flowers found in meadows at 14,000 feet altitude.

103328. *SILENE APRICA* Turcz.

No. 23486. An herb found in pine forests of Tsechung, on the Mekong River, at 7,000 feet altitude.

Nos. 103329 and 103330 were collected in alpine meadows on Mount Kanshu, on the trail to the Leirong Mountains, southwestern Muli, Szechwan.

103329. *SILENE* sp.

No. 24468. An herb with purple flowers, collected at 11,000 feet altitude.

103330. *SILENE* sp.

No. 24478. An herb with purple flowers collected at 12,500 feet altitude.

103331. *SILENE* sp.

No. 24593. From Mount Gibboth, southwestern Szechwan, near the Yunnan border. An herb with lavender flowers, found in meadows at 11,000 feet altitude.

103332 to 103346. *SORBUS* spp. Malaceae. Mountain-ash.

103332. *SORBUS VILMORINI* C. Schneid.

No. 22048. From Mount Kenichunpo in the mountains of Champutong at 11,000 feet altitude. A shrub or tree 10 to 15 feet high, with feathery compound leaves and white to red flowers succeeded by bright translucent rose-red fruits.

For previous introduction see 61992.

103333. *SORBUS SETSCHWANENSIS* (C. Schneid.) Koehne.

No. 22286. From forests on the Solola, Tsarung Province, southeastern Tibet. A shrub or small tree 10 to 12 feet high. The compound leaves, 2 to 4 inches long, are composed of 12 to 17 pairs of narrow-oblong leaflets, and the white to red flowers are in clusters 1 to 2 inches across. This has the smallest leaves of any of the mountain-ashes, and is native to Szechwan.

103334. *SORBUS* sp.

No. 22346.

103335. *SORBUS VILMORINI* C. Schneid.

No. 23299. From Mount Fuchuan, west of the Mekong-Salwin Divide, west of Weihsü, Szechwan.

For previous introduction and description see 103332.

103174 to 103357—Continued.

Nos. 103336 to 103341 were collected on Mount Moting, east of Atuntze, Yunnan.

103336. *SORBUS* sp.

No. 23362. A tree 12 to 15 feet high, with white flowers, found in a spruce forest at 12,500 feet altitude.

103337. *SORBUS* sp.

No. 23390. A shrub or tree 10 to 20 feet high, found in mixed forests at 11,500 feet altitude.

103338. *SORBUS* sp.

No. 23468. A tree 20 feet high, found in forests at 12,000 feet altitude.

103339. *SORBUS* sp.

No. 23500. A tree from 10 to 15 feet high, with pinkish flowers, found in forests between 11,000 and 12,000 feet altitude.

103340. *SORBUS* sp.

No. 23543. A shrub or small tree 6 to 15 feet high, with pink flowers, collected in a fir forest at 12,000 feet altitude.

103341. *SORBUS* sp.

No. 23547. A small tree 10 to 15 feet high, with white flowers, collected in a fir forest at 12,000 feet altitude.

Nos. 103342 and 103343 were collected at Tsarong, west of Dikerla and Yundshl, in the Kaakerbo Mountains, in southeastern Tibet, in a fir forest at 12,000 feet altitude.

103342. *SORBUS* sp.

No. 23644. A tree 10 feet high with red flowers.

103343. *SORBUS* sp.

No. 23657. A shrub 6 to 8 feet tall with white flowers.

103344. *SORBUS VILMORINI* C. Schneid.

No. 24275. From Miturong, Muli Territory, east of the Yalung River on the Mutikonka Mountains (a hitherto unknown snow range), southwestern Szechwan, in a spruce forest at 12,000 feet altitude.

For previous introduction and description see 103332.

103345. *SORBUS* sp.

No. 24553. From forests at 11,000 feet altitude, on the western slopes of Mount Mitzuga, Muli Territory, Szechwan. A shrub 10 to 15 feet high with pink flowers.

103346. *SORBUS* sp.

No. 25250. From a fir forest at 12,500 feet altitude, in the mountains west of Hsiao Chungtien, northwestern Yunnan. A shrub 10 to 15 feet high with white flowers.

103347. *SPIRAEA ARCUATA* Hook. f. *Rosaceae*. *Spirea*.

No. 24426. Among trees at 11,000 feet altitude, in the Yeti Mountains, north of Kulu, Muli Territory, Szechwan. A bushy shrub 6 to 8 feet high with shining dark-brown branches and small obovate, coarsely toothed or lobed leaves;

103174 to 103357—Continued.

leaves one-half inch long. The small flowers, which vary from red to white, are in dense corymbs. Native to the Himalayan region between 11,000 and 14,000 feet altitude.

103348. *STYRAX SCHWELIENSIS* W. W. Smith. *Styracaceae*. *Snowbell*.

No. 24572. Between Muli and Kulu, Szechwan, in valleys at 8,000 feet altitude. A deciduous shrub from 3 to 9 feet high with broadly elliptic, shortly acuminate papery leaves 2 inches long and small dull creamy-white flowers in terminal and axillary racemes. Native to southwestern China.

103349. *SYMPLOCOS* sp. *Symplocaceae*. *Sweetleaf*.

No. 22061. From Mount Kenichunpo at 10,000 feet altitude; a tree 15 to 20 feet high with cream-colored flowers.

103350. *SYRINGA YUNNANENSIS* Franch. *Oleaceae*. *Lilac*.

No. 24349. From Dzempe Sheren, west of Wuato Gomba, in Muli Territory, Szechwan, in spruce forests at 12,000 feet altitude. A shrub from 3 to 8 feet high with fragrant pink flowers.

For previous introduction see 100905.

103351 and 103352. *TUMION FARGESII* (Franch.) Skeels (*Torreya fargesii* Franch.). *Taxaceae*.

An evergreen tree sometimes over 100 feet tall, with a trunk over 4 feet in diameter, and huge descending branches, which is found occasionally in the deciduous and semideciduous forests of the Mekong-Yangtze Divide, and also more commonly on the Mekong-Salwin Divide at an altitude of 10,000 feet. The fruits are the size of small walnuts. The tree prefers rich black soil and considerable rainfall.

For previous introduction see 58600.

103351. No. 22656. From the Solola, Tsarung Province, southeastern Tibet. A shrub or small tree 10 to 15 feet high, found in open scrub forest land at 10,000 feet altitude.

103352. No. 23291. From Mount Fuchuan, west of the Mekong-Salwin Divide, west of Weihsai, Szechwan, at 10,000 feet altitude. A tree 50 to 60 feet high.

103353 to 103356. *VACCINIUM* spp. *Vacciniaceae*. *Blueberry*.103353. *VACCINIUM* sp.

No. 22340. From the Tjonatong Mountains, Upper Salwin River, Tsarung Province, southeastern Tibet, at 14,500 feet altitude. A shrub 1 foot high with pink flowers, found among rocks.

103354. *VACCINIUM* sp.

No. 22407. From Mount Wulila, east of the Salwin River and north of Alulaka, southeastern Tibet, at 13,500 feet altitude. A shrub up to 6 inches high, found among rocks and boulders.

103355. *VACCINIUM FRAGILE* Franch.

No. 22653. From the Solola, Tsarung Province, southeastern Tibet, at 12,000 feet altitude. A shrub 1 foot high with red fruits, found among rocks.

103174 to 103357—Continued.

103356. *VACCINIUM DELAVAYI* Franch.

No. 23522. From Mount Moting, east of Atuntze, Yunnan, at 12,000 feet altitude. A shrub with pink flowers, found among rocks.

103357. *VITIS PENTAGONA* Diels and Gilg. Vitaceae. Grape.

No. 24574. Between Mull and Kulu, Szechwan, at 9,000 feet altitude. A woody vine, native to China, with the stems and leaves reddish-gray tomentose. The long-petioled, papery ovate leaves are usually five-angled, and the flowers are greenish.

For previous introduction see 93969.

103358. *PHOENIX ABYSSINICA* Drude. Phoenicaceae. Date palm.

From Africa. Seeds presented by the director of the Ufficio Agrario, Asmara, Eritrea, through the Royal Botanic Gardens, Kew, England. Received June 23, 1933.

A palm, native to Ethiopia, closely resembling the common date palm. The lower leaflets are reduced to spines, while the upper ones, lanceolate and 10 inches long, are in separated groups. The dry cylindrical fruits are about 1 inch long, with no flesh. Introduced for the use of Department specialists.

103359 to 103402.

From the Union of Soviet Socialist Republics. Seeds presented by A. P. Ilijinski, chief botanist in charge of the Botanic Garden, Leningrad. Received June 21, 1933.

103359. *ACER CAUDATUM UKURUNDUENSE* (Trautv. and Meyer) Rehd. Aceraceae. Maple.

A small Manchurian tree with coarsely toothed 5- or 7-lobed leaves.

For previous introduction see 91244.

103360 to 103375. *AQUILEGIA* spp. Ranunculaceae. Columbine.103360 and 103361. *AQUILEGIA ALPINA* L. Alpine columbine.

103360. An alpine columbine about 12 inches high, native to Switzerland. The biternate leaves have deeply lobed divisions 1 to 2 inches long, and the expanded flowers are 2 inches across with blue sepals and white petals, the incurved spurs being as long as the petals.

103361. Variety *superba*.103362. *AQUILEGIA ATRATA* Koch.

A perennial columbine closely resembling *Aquilegia vulgaris*, but differing in its more deeply lobed leaves and smaller flowers, which are blackish violet with long protruding stamens. Native to central Europe.

103363. *AQUILEGIA BERTOLONII* Schott.

An alpine plant over a foot high, with long-stemmed biternate, incised-lobed basal leaves and pale-blue flowers. It is native to the Alps.

For previous introduction see 101769.

103359 to 103402—Continued.

103364. *AQUILEGIA BREVISSYLA* Hook.

A pubescent or glandular perennial native to northwestern America. The basal leaves are biternate with three-lobed and coarsely serrate leaflets, the stem leaves are ternate or simple and three-lobed. The blue and white flowers are less than an inch long, and the spurs are about one-third of an inch long.

103365. *AQUILEGIA BUERGERIANA* Sieb. and Zucc.

A perennial herb, native to Japan, with biternate leaves and yellow flowers tinted with purple. The erect nearly straight spurs are as long as the petals.

103366. *AQUILEGIA CARMASINA* Hort.

A name for which a place of publication and a description have not been found.

103367. *AQUILEGIA CAUCASICA* (Ledeb.) Rupr.

An upright herbaceous perennial, native to the Caucasus, with biternate, finely pubescent leaves and rather large attractive flowers, the sepals being pink or sky blue and the petals yellow.

103368. *AQUILEGIA EINSELBANA* Schultz.

A columbine from the Alps of western Germany, with stiff, ternate, incised or crenate leaves and blue flowers, smaller than those of *Aquilegia alpina*.

For previous introduction see 101768.

103369. *AQUILEGIA FRAGRANS* Benth.

A perennial herb, possibly a form of *Aquilegia vulgaris*, native to the Himalayas at altitudes between 10,000 and 14,000 feet in India and Tibet. The stems and leaves are softly pubescent or glandular and often glaucous, and the white fragrant flowers have long slender straight or hooked spurs.

103370. *AQUILEGIA HELENAB* Hort. Helen columbine.

Considered to be a hybrid between *Aquilegia caerulea* and *A. chrysantha*. The plants are robust with numerous blue and white flowers.

103371. *AQUILEGIA MONSTROSA* Hort.

A name for which a place of publication and a description have not been found.

103372. *AQUILEGIA SIBIRICA* Lam. Siberian columbine.

A nearly glabrous perennial herb, 1 to 2 feet high, native to Siberia. The biternate leaves are made up of shallow-lobed leaflets 1 to 2 inches broad, and the many lilac-blue and white flowers have stout incurved or even coiled spurs one-half inch long.

103373 to 103375. *AQUILEGIA VULGARIS* L. European columbine.

103373. Variety *nivea grandiflora*; large white flowers produced in great profusion.

103359 to 103402—Continued.

103374. Variety *olympica*; large light-lilac or bright-purple and white flowers.

103375. Variety *stellata*.

103376. *COTONEASTER MELANOCARPA* Lodd. Malaceae.

A spreading shrub 6 to 8 feet high, native to Europe and Asia. The broadly ovate leaves, 1 to 2 inches long, are dull dark green above and whitish tomentose beneath, and the nodding pinkish flowers, in clusters of 3 to 8, are followed by subglobose black fruits.

103377. *IRIS BUNGEI* Maxim. Iridaceae.

A Mongolian iris of the *Apogon* section, with linear basal leaves and pale-blue flowers, violet within.

103378. *IRIS* sp. Iridaceae.

103379 to 103383. *LILIUM* spp. Liliaceae. Lily.

103379. *LILIUM BULBIFERUM* L.

A bulbous perennial, native to Europe, with a furrowed stem 2 to 4 feet high, the upper part covered with white down and bearing bulblets in the leaf-axils. The lanceolate leaves are 3 to 4 inches long, and the 1 to 4 bright orange-red flowers, 3 to 4 inches across, are spotted with purple and tinged in the center with yellow.

103380 and 103381. *LILIUM MARTAGON* L. Martagon lily.

The martagon lily grows wild from central and southern Europe to southwestern Siberia. The stem is 3 to 6 feet high, often purple spotted, with horizontal deep-green leaves 3 to 6 inches long. The dull claret-purple flowers, spotted purplish black, with red anthers, appear in late June and July and from 3 to 20 flowers blossom at one time.

For previous introduction see 101995.

103380. The typical form.

103381. A fasciated form.

103382. *LILIUM MONADELPHUM* Bieb. Great Caucasian lily.

A lily with canary-yellow flowers thickly dotted with purple.

For previous introduction see 101919.

103383. *LILIUM TIGRINUM* Ker. Tiger lily.

A lily native to southwestern China where it is found along watercourses at 9,000 feet altitude. The large orange and purple black-spotted flowers are very attractive.

103384 to 103386. *NEPETA* spp. Mentha-
ceae.

103384. *NEPETA BARBATA* Regel and Winkl.

An erect or ascending herb over a foot high, with ovate acute short-stemmed leaves about 1 foot long and small flowers in lax cymelike racemes. Native to eastern Turkistan.

103385. *NEPETA CYANEA* Stev.

A perennial mint, native to the eastern Caucasus, with hairy ovate cuneate leaves and showy blue flowers in small cymes.

103359 to 103402—Continued.

103386. *NEPETA GRANDIFLORA* Bieb.

A green nearly glabrous perennial 1 to 2 feet high, native to the Caucasus region. The heart-shaped leaves are crenate, and the two-lipped flowers are violet and blue.

103387 to 103391. *PAEONIA* spp. Ranunculaceae. Peony.

103387. *PAEONIA ALBIFLORA* Pall. Chinese peony.

A perennial herb 2 to 3 feet high, native to eastern Asia. The biternate leaves are made up of oblong-lanceolate leaflets, 3 to 4 inches long, often red veined. The 2 to 5 flowers have eight or more white or pink petals, the stamens are golden yellow, and the 3 to 5 ovoid follicles are recurved-spreading.

103388. *PAEONIA ANOMALA* L.

A perennial herb, native to Europe and Asia, with one-flowered stems 2 to 3 feet high. The biternate leaves are cut into numerous lanceolate long-pointed segments, and the large bright-crimson flowers are borne in June and July.

103389. *PAEONIA BERESOWSKII* Kom.

A herbaceous perennial about 3 feet high, native to western China. The light-green leaves are 3- to 8-folliolate, and the white or pale-rose flowers are 2 to 3 inches across.

103390. *PAEONIA PEREGRINA* Mill.

A perennial herb, native to Europe, with stems 1 to 2 feet high, bearing 1 to 5 biternately divided deep-green leaves and dark-crimson flowers.

103391. *PAEONIA VEITCHII* Lynch.

A herbaceous peony, native to western China, about 2 feet high, with shining light-green leaves and purple-crimson flowers about 4 inches across.

103392. *RHODODENDRON CAUCASICUM* Pall. Ericaceae. Caucasian rhododendron.

A shrub seldom more than 3 feet high, native to the Caucasus region between 6,000 and 7,000 feet altitude. The ovate, obovate or oblong leaves, 2 to 5 inches long, with more or less recurved margins, are dark green, glabrous at maturity, and slightly rugulose on the upper surface, the under surface being covered with a thin fawn to tawny or pale rusty tomentum. The broadly campanulate flowers are yellowish or rose tinted and are borne on long erect stalks in candelabroid trusses.

For previous introduction see 101957.

103393 to 103398. *SALVIA* spp. Mentha-
ceae. Sage.

103393. *SALVIA AUSTRIACA* Jacq.

A perennial herb 2 to 3 feet high, native to southern Europe, with broadly ovate leaves, and the two-lipped yellow flowers have the upper lip spotted with red.

103394. *SALVIA AXILLARIS* Moc. and Sesse.

A low bushy herb with small linear-oblong acute entire leaves and small axillary bluish flowers. Native to Mexico.

103359 to 103402—Continued.

103395. *SALVIA BERTOLONII* Vis.

A perennial herb, hairy throughout, with an erect or ascending stem, cordate-ovate crenate leaves, and branched racemes of flowers which are reddish violet or, rarely, white. Native to Dalmatia.

103396 to 103398. *SALVIA VERTICILLATA* L. Lilac sage.

A pilose herbaceous perennial 2 to 3 feet high, native to the Caucasus region. The lyre-shaped basal leaves are cordate sinuate-crenate and hispid on both surfaces, while the floral leaves are deflexed and bractlike. The small tubular lilac-blue flowers are in remote whorls of 20 to 40 arranged in branched racemes often over a foot long.

103399. *THYMUS MARSCHALLIANUS* Willd. Thyme.

A creeping subshrub, native to the Caucasus region, closely related to *Thymus serpyllum*. The stems are hirsute or villos, and the linear-oblong leaves are ciliate on both surfaces.

103400 to 103402. *TULIPA* spp. Tulip.103400. *TULIPA ALTAICA* Pall.

A tulip from the Altai Mountains, with oblong-lanceolate undulate leaves slightly exceeding the flowers. The scarlet and yellow flower segments are alternately lanceolate and spatulate-oblong.

For previous introduction see 100643.

103401. *TULIPA BIEBERSTEINIANA* Schult. f.

A rather low plant with 2 or 3 lanceolate or linear grooved acute leaves and a smooth stem bearing a single flower, yellow within and greenish yellow on the outside. Native to southeastern Russia and closely related to *Tulipa celsiana*.

For previous introduction see 101619.

103402. *TULIPA* sp.103403. *GOSSYPIUM PERUVIANUM* Cav. Cotton.

103403—Continued.

From Peru. Seeds presented by Alejandro Correa Elias, San Vicente, Canete, through T. H. Kearney, Bureau of Plant Industry. Received June 6, 1933.

Tanguis cotton. Introduced for the use of Department specialists.

103404. *ALLIUM SATIVUM* L. Liliaceae. Garlic.

From India. Bulbs purchased from V. H. Kulkarni, superintendent, Modibag Agricultural College, Poona, through M. K. Patel, assistant professor of mycology. Received June 30, 1933.

Introduced for the use of Department specialists.

103405. *CALONCOBA BREVIPES* (Stapf) Gilg. Flacourtiaceae.

From Cuba. Seeds presented by Robert M. Grey, superintendent, Atkins Institution of the Arnold Arboretum, Soledad, Cienfuegos. Received June 27, 1933.

From a tree grown from seed received from Doctor Fairchild, June 5, 1927, collected on the West African trip with Allison V. Armour. An attractive tropical tree 20 feet high, which bears fragrant pure-white flowers 3 inches in diameter. These appear during the winter when the tree is leafless. The dry yellow fruits, about the size of a lime, contain numerous seeds from which the natives express the oil to treat skin diseases.

103406. *EHRETIA ELLIPTICA* DC. Boraginaceae.

From Texas. Seeds presented by Peter H. Heinz, Brownsville. Received June 28, 1933.

Mexican names, *Anagua* and *manzanillo*. A shrub or tree up to 50 feet high, native to western Texas and northern Mexico. The thick oblong scabrous leaves are 1 to 4 inches long. The small, white fragrant flowers are borne profusely and are followed by sweet edible yellow fruits about one-fourth inch in diameter. The wood is used for tool handles and wheel spokes. In southern Texas young trees are used as ornamentals for planting on lawns.

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