

South Africa, Cuba, and various parts of North and South America. It has already been stated that it is not hardy in this country, a temperature below the freezing point—or even in some cases a little above it—appearing to kill it. Another useful quality of the tree is that, in consequence of its deciduous bark, it is not attacked by parasites. Baron von Mueller, the director of the Botanic Gardens at Melbourne, states that the ashes of the wood of this and of other species of *Eucalyptus* contain a very large proportion of potash, in some cases as much as twenty-one per cent.

The medicinal properties of the *Eucalyptus globulus* are due to the presence, so common in trees and shrubs belonging to the Myrtaceæ, of a volatile oil, in various parts of the plant, but especially in the mature leaves. This oil may readily be obtained by distillation with water, is of a yellow colour when freshly distilled, and resinifies by exposure to the air. Its principal constituent was found by Cœz to be a colourless liquid boiling at 347° F., which he regarded as analogous to camphor, and to which he gave the name *Eucalyptol*; more recent investigations have shown this to be a mixture of two substances, a terpene and a cymol, the essential oil containing other substances in addition to these. Older statements that the leaves of *Eucalyptus* contain, besides this essential oil, quinia or some other of the well-known cinchona alkaloids, have been shown, by the researches of Broughton, to be altogether without foundation.

The value of the leaves as a febrifuge, especially in cases of intermittent fever, has been attested by many medical practitioners, English, Italian, and French; and in Australia the leaves have long had a popular reputation in the treatment of fevers. They are best administered in the form of an alcoholic tincture, which is also useful as a stimulant and antispasmodic. As an external dressing for wounds it is stated by M. Gimbert that the balsamic nature of the leaves not only has a curative effect, but removes all the unpleasant odour. The oil is also used as a disinfectant and antiseptic.

But the point to which the most interest attaches in connection with the *Eucalyptus* is its alleged anti-malarial properties, in consequence of which it has been called the "fever-destroying tree." On this subject Prof. Bentley says that "the evidence that has been adduced from Australia, the native country of the tree, and from all parts of the world where it has been introduced, and which are favourable to its growth, in testimony of its anti-malarial properties, is so strong that, allowing for exaggeration in some cases, it can scarcely be doubted that this tree does produce a most beneficial effect by destroying the fever-producing miasm of marshy districts; and that it should consequently be introduced into all countries and districts where the climatic influences are favourable for its development, and where such miasmatic emanations are to be found." Special interest attaches to the introduction of the blue gum tree into Italy for this purpose, and it is confidently hoped that by its means the problem may at length be solved of destroying the noxious malaria which has in recent times rendered the level country round Rome so unhealthy in the summer season. The chief difficulty is with the occasional frosts to which Northern Italy is subject. Of a large number of trees planted at one time by the Roman Railway Company along the line from Rome to Naples, only those in the neighbourhood of Naples survived the first winter. It is possible, however, that if they became established through a succession of mild winters, and attained a good size, they might then be able to resist slight frosts.

The mode in which the trees thus act in influencing the climate is open to somewhat more controversy. The popular idea is that the efficient cause is the odorous and antiseptic emanations from the leaves. It is quite likely that some influence is exerted in this way, but it seems

most probable that the chief effect produced is by the action of the roots on the soil. This function of trees is often greatly overlooked. The effect of the planting of forests in decreasing the rainfall is frequently erroneously stated to be due to the attractive force of the trees on the moisture in the air, similar to that exerted by a range of mountains; but it is difficult to conceive that the small mass of the entire foliage of a forest can exert any appreciable influence in this direction. The mode in which trees mainly act is by their roots arresting the rainfall, which would otherwise escape by the natural drainage of the country; the combined forces of capillarity, osmose, and transpiration then cause the ascent through the tissues of the tree of the water thus arrested, and the larger portion is eventually given off into the air through the stomata of the leaves. In this way a forest tree will in a very short time give off into the air its own weight in water, which must eventually condense, and be again deposited as rain or dew. It is quite possible, however, that the effect of the planting of trees may be apparently the reverse of this in swampy countries where there is no natural drainage. The water then accumulates in the soil; and, if the country is bare of timber-trees and the sun powerful, a rapid decomposition takes place of the herbaceous vegetation, with the consequent emanation of malarial vapours. The effect of the planting of trees under such conditions will be to supply artificial drainage; the accumulation of water in the soil and the consequent noxious effluvia will be diminished and finally prevented, and the atmosphere will be rendered, if not drier, at all events more wholesome. This is the mode in which it is hoped that the malarial fevers of the Campagna may ultimately succumb to the influence of the *Eucalyptus*. In no quarter of the world have the beneficial effects of the planting of this tree been more distinctly seen than in Algeria, where it has been carried on to a considerable extent for some years, mainly through the exertions of private individuals, French and English, aided by the Government. All the good things that have been said about it are there found to have been realised.

A. W. B.

MANTEGAZZA ON THE RELATIVE LENGTHS OF THE INDEX AND "RING" FINGERS

THE curious and suggestive researches made about two years ago by Prof. Ecker, of Freiburg University, in the Breisgau, into the comparative lengths of the index and ring fingers, the results of which were embodied in an article contributed to this journal (vol. xiii. p. 8), entitled, "A new Palmistry," have, in the meantime, been further followed out by Prof. Mantegazza, of Florence.¹

With the aid of another observer the Florentine professor has made several hundred observations, almost all upon Italians, the subjects being for the most part Romans, Tuscans, and natives of Lombardy. The results are classified in the following table:—

Out of two hands the index longer than the "ring" finger.		Out of two hands the index the shorter.	
Men	27	Men	309
Women	64	Women	194
Total	91	Total	503
Men :: 6·7 : 100		Men :: 76·67 : 100	
Women :: 20·71 : 100		Women :: 62·78 : 100	
Total :: 12·77 : 100		Total :: 70·65 : 100	

¹ "Della Lunghezza relativa dell' Indice e dell' Anulare della Mano umana." Nota del Professore Paolo Mantegazza. Archivio per l'Antropologia e la Etnologia, vol. vii. p. 19. Firenze, 1877.

In one hand the index longer. In the other shorter or = "ring" finger.	Index of same length as "ring" finger in both hands.
Men 57	Men 10
Women 45	Women 6
Total 102	Total 16
Men :: 14'14 : 100	Men :: 2'48 : 100
Women :: 14'56 : 100	Women :: 1'94 : 100
Total :: 14'32 : 100	Total :: 2'25 : 100

The following instances of this "carattere oscillante" (*schwankender character*, Ecker) of the human hand are taken from what the professor terms "our feminine Olympus":—

1. A pretty Piedmontese girl, with the most lovely hands. In both the index longest.
2. A Jewess of Modena, very lovely, and with beautiful hands. Index much shorter than "ring" finger on both sides.
3. A handsome lady of Imola, with pretty hands. The index a little shorter than the "ring" finger.
4. A Tuscan lady with a most lovely hand. Index the longest of the two digits in question.
5. A lady of Rimini, with a lovely and very small hand. Index longer on both right and left sides.
6. A Neapolitan lady with a wonderful face and figure, and with handsome but large hands. Index shorter than the "ring" finger on both sides.
7. A Ferrarese lady, pretty, and with a hand of rare beauty. Index the shortest in each hand.
8. The prettiest lady in Meldola, with lovely hands. Index the longer on both sides.
9. A lady with the most lovely face and figure and with beautiful hands. Index the shortest in both hands.
10. A Jewess of Livorna, handsome, and with the most lovely hands. The right index the longer, the left the shorter.
11. A lady of Cremona, with a wonderful face and figure, and with large but beautiful hands. Index longest on both sides.
12. A Venetian lady, very beautiful, and with "divine" hands. Index slightly longer on both sides.

Prof. Mantegazza considers that his observations partly confirm and in part check the conclusions of his German colleague. To the examples taken by Prof. Ecker from the domain of art, the former adds the following interesting passage from Prof. Casanova ("Mémoires de Casanova," tome vi., p. 252; Bruxelles, 1871), relative to an argument between this author and the celebrated painter Rafaele Mengs, on the subject of the two digits in question:—

"I remember that one day I took the liberty, in the course of viewing his pictures, of calling his attention to the fact that the hand of a certain figure seemed out of drawing. In fact the fourth finger was shorter than the second.

"A pretty observation," he replied; "look at my hand," and he held it out.

"See mine," I answered, "I am convinced it does not differ from that of other sons of Adam.

"From whom, then, would you have me descend?" he replied.

"Ma foi!" I said, after examining his right hand, "I do not know to what species to refer you, but you certainly don't belong to mine."

"Then your species is not a human one, for the form of the hand of man and woman is just like that."

"I bet you a hundred pistoles that you are mistaken," said I.

"Furious at my contradiction, he throws aside palette

and brush, rings for his servants, and makes them all show their hands. His rage was great when he discovered that in all of them the ring finger was longer than the index. Feeling however, the absurdity of his conduct, he ended the scene by the following *mot*:—

"I am delighted, at any rate to be, to a certain point, unique of my kind."

Sig. Paolo Lioy—evidently a trustworthy observer—having been asked by Prof. Mantegazza to direct his attention to the subject in question, returned the following answer:—"I have examined about two hundred individuals but it is remarkable that only in *one man* and in the *left hand* have I seen the index longer than the ring finger. In all the rest, and in both sexes, the ring finger is always the longest, and, with the exception of nine persons, in whom it is but a little longer, it is generally much so; in this, too, in hands fairly beautiful—"in manine assai belle." It is, therefore, remarkable that, as far as I have been able to see, painters and sculptors give the index the greater length. This I have noticed in all the designs of Canova, the most painstaking and purest idealiser of beauty; as I have been able to verify in certain figures of Titian and Ary Scheffer." Sig. Lioy, thus confirms, as Prof. Mantegazza remarks, the observations of Dr. Ecker.

With regard to the transmission from parent to offspring of the peculiarity of the hand which forms the subject of this article, Prof. Mantegazza states that in many cases he has been enabled to verify the heredity of these characters in certain families in which the father and mother differed as to the relative lengths of the two fingers in question; the children exhibiting the digital proportions of that parent to which they bore the greatest resemblance.

This interesting paper concludes with the following remarks:—"If, however, I have been mistaken in the interpretation of the aesthetic value of the Eckerian character ('del carattere eckeriano'), it would be difficult to find a judge more impartial than myself, in that nature has given me a left hand with an index almost as long as the ring finger, and a right hand with the index shorter than the ring digit. But if artists wish to deduce a practical lesson from this very brief dissertation, I would advise them to give to the more perfect creations of their tool or pencil an index somewhat longer than the ring finger, without, however, wishing to deny to human nature the liberty of making very beautiful hands with a 'ring' finger longer than the index."

J. C. GALTON

NOTES

FILIPPO PARLATORE, Director of the Museo di Fisica e Storia Naturali, at Florence, and of the Botanic Gardens, died suddenly, of a fit, on Sunday, September 9. He elaborated the Gnetaceæ and Coniferæ, for the sixteenth volume of De Candolle's "Prodromus," and was author of a partly completed work on the Italian flora.

WE regret to announce the death of Prof. Jacob Nöggerath, lecturer on Mineralogy at Bonn University, who died at the advanced age of 90 years, on Thursday last the 13th instant.

SIR JOSEPH HOOKER and Prof. Asa Gray, who, as our readers know, are accompanying Dr. Hayden on a scientific tour in Western America, had, the *American Naturalist* states, collected, previous to August 1, nearly 400 species of rare plants, being thus enabled to study critically in their native habitats the species they had during past years described from dried specimens brought in by expeditions. Both Sir J. Hooker and Prof. Gray will prepare reports on the botany of the West for the Eleventh Report of Hayden's Survey.