deliver as quickly as possible; and here I experienced the very great utility of Dr. Barnes's elastic bags in causing rapid dilatation. In the second, after trying in vain for several days to induce labour by tangle- and sponge-tents, I desisted from further efforts. About ten days afterwards, labour came almost as if spontaneously, and terminated very favourably for both mother and child. On the whole, the average time occupied was about three days.

I now come to by far the most important part of these statistics—viz., the result of the operation to both mother and child. And here I must confess that my own statistics do not show in so favourable a light as those which have been recorded by many others. This result, however, is more apparent than real. Out of my total of 20 cases, three mothers died after the operation. In two of these the condition was so desperate, that to have declined performing the operation would have been to have abandoned them to certain death. As it turned out, however, the shock of the operation was the last straw which broke the camel's back. Notwithstanding this, I should again, in a similar case, be disposed to run the same risk rather than to resign the patient to her fate without making an effort in her behalf. The only case in which death was clearly the result of the operation was No. 5. This arose from an untoward combination of circumstances, which I have already explained.

In my own cases, the infant mortality also is rather great; as many as 11 infants out of 20 were still-born, and of those who were born alive two died, one six hours and the other four days afterwards. Although these results are not so unfavourable as some that are recorded, as, for instance, in the 46 cases mentioned by Dr. Merriman, jun., of which only 16 children lived, yet they are not so good as the averages of a great number of different practitioners, which give on the whole a mortality of rather less than half the children. Part of the infant mortality in induced premature labour is due, no doubt, to the fact, that malpresentations are more frequent than at the full term. Thus in 243 premature cases related by Dr. Arneth, there was one malpresentation in five. In my twenty cases, there were four malpresentations (two of the breech, one of the feet, and one of the arm); and this exactly corresponds with Dr. Arneth's average.

On the whole, as regards the maternal mortality, the induction of premature labour has not, in my hands, shown a more favourable result than the operation for which it is an alternative—viz., craniotomy, which in my own practice has proved fatal in two cases only out of thirty-four. In three of my twenty cases, the induction of labour gave rise to very severe and alarming symptoms resulting from shock, such as excessive rigors, pain in the back, with abdominal tenderness, and a pulse of 130; so that I cannot altogether endorse the statement of Dr. Churchill, when he says that "there is unquestionably *some risk* incurred by the mother, but not more than by an accidental premature labour".

Although the saving of infant life effected by this operation is an advantage which far outweighs any of the disadvantages just mentioned, yet the accoucheur should, I think, always bear in mind that it is a proceeding attended with some risk, and involving a great amount of responsibility—such an amount, indeed, that he ought always, if possible, to share it with another practitioner.

ON HERB-POISONING AT THE CAPE OF GOOD HOPE.*

By GEORGE GREY, M.D., F.G.S.Edin.,
District Surgeon to the Government for the Division of Cradock, Cape of Good Hope.

THE Bushmen tribes (Bosjesmen) of Southern Africa are pretty generally known to be naturally cunning, treacherous, and vindictive. As regards *physique*, authorities in ethnological science have placed them in all but the lowest grade in the human scale, and their mental capacity is, no doubt, only on a par with their physical configuration. Nevertheless, these people manifest certain inherent powers of perception, and they may safely be credited with a tolerably accurate knowledge as to right and wrong. We must, therefore, not view them, as some have been disposed to do, in the light of beings wholly devoid of a moral sense—ill-regulated and distorted though it undoubtedly is.

Consequently the Bushman of Southern Africa must, like his superiors in the human family, be held responsible for his deeds, whether good or bad; though, after taking into consideration his very depraved habits and miserable mode of living, his criminal propensities, and his disregard of all means calculated to raise him from his degraded condition, we feel compelled to relegate him, in a social sense, to the class commonly denominated "evil-doers".

But, in the Kaffir race, of which people we have a considerable number scattered throughout the district of Cradock, comprising principally individuals belonging to the Amaxosa, Tambookie, and Basuto tribes, we find no trace of resemblance to the genuine aborigines of Southern Africa. The Kaffir, whose original habitat is believed to be North-East Africa, is almost as distinct and different in his physical and mental development from the Bushman as he is from the European; and, if placed in comparison with the Koranna and Damara Hottentots, the Griquas, Bosjesmen, and other unpromising people peculiar to this region, we have to pronounce him in every respect a superior variety of the genus *Homo*.

But, notwithstanding, the Kaffir is an utter savage, and it is with much difficulty he can be brought to a proper appreciation of European laws and customs; a considerable time must elapse before the march of civilisation here, progressive as it is, can render him a trustworthy dependent to the colonists; and, therefore, we have good ground for assuming that, until such can take place, our barbarous coloured races are not likely to refrain from resorting, as occasion may suit them, to the crime of secret poisoning. We must not, however, forget that it is a stated axiom in the ethics and laws of savage races, that though criminal acts, or such as relate to death by poisoning, and, indeed, all serious offences, when perpetrated against any members of their own tribe or nation, are followed by condign punishment on the offenders, such crimes are really considered as meritorious deeds when members of foreign, and therefore, to them ill-favoured, communities are the victims.

As bearing upon the foregoing remarks, I would now observe that during the last eight years, I have been required to investigate, in my official capacity as district surgeon of this division, eleven cases of reported poisoning in and around Cradock. In many of these, whole families have been affected, and generally in each family one, and sometimes more, deaths have occurred. The above may be looked upon as a considerable number for a comparatively small and scattered population, which includes, in town and country, according to the last census, only 12,228 inhabitants, the whole district embracing an area of 1,806,692 acres (2,986 square miles). We must also take into account that, perhaps, not more than one-half of the above crimes (at least among the coloured people), when committed in isolated places, are ever brought to light.

It is not my intention to enter at present into any detailed statement on the cases above referred to, except on one which recently occurred at Middleburg, and which involved very serious and important issues. I would only remark, with respect to the others, that in many of them I found that strychnia, or else the seeds of *strychnos nux vomica*, had been the drug resorted to; and in other cases the tuberous roots of certain iridaceous plants had, as far as could be ascertained, been used. At the scattered farm-houses hereabouts, a small supply of strychnia is usually kept for the destruction of leopards, wolves, jackals, wild dogs, and other troublesome carnivora; this poison is, therefore, through carelessness, often of easy access to persons who may be criminally disposed.

In fatal cases of poisoning by strychnia, that alkaloid is not now considered a very difficult substance to detect; but, in this colony, which possesses a large and widely extended flora, an arrival at a correct determination by analysis as to the nature and properties of any indigenous plants used in attempts to poison cannot fail, in the absence of other good proof, to be a very complicated and troublesome procedure. Therefore, when a case of such a character rests otherwise upon very doubtful evidence, who can be surprised that a satisfactory conclusion is not frequently attained?

On March 25th last year, an express reached Cradock from Mr. C. W. Andrews, resident magistrate of Middleburg—a town sixty miles north of this—with a request that I would attend there at once, for the purpose of rendering professional aid to the survivors in a case of poisoning which had just occurred. The whole household of Dr. Coward, district surgeon for Middleburg (except a Bushman maid-servant), had been seized on the previous day, after partaking of some soup, with alarming vomiting, followed by a painful feeling of constriction across the chest, and other abnormal symptoms. Mr. J. O. Reeve, a merchant of Graaff Reinet, at the time on a visit to Dr. Coward, had died within eighteen hours of receipt of the poison, and, on the same day (24th), little hope was entertained of the recovery of the others. On my arrival at Middleburg, I found the whole family overwhelmed with grief; for, on the morning of the 25th, a fine little boy of Dr. Coward's, eight years of age, had also succumbed to the effects of the poison. In all, eight persons had been affected by it. Fortunately, by that time, serious symptoms in the survivors had considerably abated, and, although all were suffering from severe shock and after-effects, restoration was being gradually established. I made a *post mortem* examination on the body of Mr. Reeve, who had been a well-formed and muscular man of about 30 years. The body presented, externally, a natural appearance. There was no *rigor mortis*—a characteristic feature in cases of death from *strychnos, brehmia, hyœnanche, melianthus* (the

* For this interesting MS. we are indebted to the Editor of *Nature*.

three last named are indigenous to the colony), and other substances belonging to the class "neurotic poisons". The lungs and heart were healthy, but the pulmonary arteries and their branches were engorged with a remarkably dark, venous blood. The right ventricle of the heart was filled with a similar very dark blood. The muscular structure of the heart was very flaccid. The stomach, where I had thought to have discovered indications of inflammatory action, was quite empty, and exhibited no signs of inflammation. The continued vomiting, which had lasted for several hours after taking the soup, had evidently caused a rejection of the poison, and death had resulted from secondary causes. Other organs were natural in appearance, except that there was venous congestion throughout, and especially in the blood-vessels of the brain.

There can be no doubt that death resulted from effects produced by the soup taken on March 23rd, and, from the symptoms as observed till death in the two fatal cases, viz., intense vomiting, a constant feeling of oppression over the chest, a feeble and intermitting action of the heart, a tendency to coma for some hours before death, and from *post mortem* appearances, I am of opinion that the poison used belonged to the class termed by Orfila "narcotico-irritant".

I think that the effects (secondary) of the poison were probably partial paralysis of the coats of blood-vessels, muscles, and nerves, belonging to the organs of respiration, involving considerably the cardiac and coronary plexuses. This would result in more or less loss of motor power, and may account (in part at least) for the flaccid condition of the walls of the heart, for the laboured respiration, and consequently imperfect oxidation of the blood.

The circumstances connected with the administration of the poison may be thus briefly recounted.

On March 20th, Dr. Coward returned to Middelburg after an absence of two or three weeks. He had been joined *en route* by Mr. Reeve at Graaff Reinet. In the meantime, the Bushgirl had been employed as a servant at the house in Middelburg. Taking advantage of her master's absence, she had grossly misconducted herself, having, among other misdeeds, been in the habit of admitting a Kaffir admirer to the house, and, to disguise the fact, stated that the house was haunted. This being detected, she was very properly reprimanded. She then expressed to Miss Coward her intention of being revenged. On the evening of the 22nd, after eating some curry, some of the family party experienced a feeling of nausea, but this did not excite much notice. On the next day, soup was served up at dinner hour, and, before many spoonfuls had been taken, Mr. Reeve first, and afterwards every person in the house, except the suspected individual, was attacked with the alarming symptoms to which I have referred. Dr. Coward, though suffering severely himself, acted most promptly and energetically, and without doubt six out of the eight persons attacked owe their lives to his exertions. Dr. Coward suggested the possibility of the girl having got access to tartar emetic in his surgery. After charring with strong sulphuric acid to destroy all organic matter, I applied to scrapings from the stomach, and to part of the soup, the proper tests for detection of antimony, but with a negative result.

The belief at present is, that certain poisonous herbs (recent) had been resorted to, and that these had been furnished to the Bushgirl by her ally the Kaffir. An extractive of the material could readily be added to any article of diet, and this would appear to have been done, first in a small quantity to the curry on March 22nd, and again in much larger quantity on March 23rd.

I will now, if space permit, add a few words on some of the native plants and their properties, which may have been used as agents in the case in question, concluding by a short statement of experiments on their action compared with some on that of the poisoned soup, as affecting animals.

By order of the resident magistrate, the tent of the Kaffir prisoner was searched, and a great number of dried roots and stems of native plants, besides seeds (some not indigenous), powdered wood, charcoal, wings and legs of the red locust, hair of the Klipspringer (*Oreotragus saltatrix*), and other substances used by Kaffir impostors and witch doctors, were found in a large bag and removed. Owing to the dry and fragmentary state of these articles, it was almost impossible to identify many of them; but most proved, on testing, to be comparatively innocuous, and at present opinion is against the probability of any of them having been used prejudicially in the case in question. Among the seeds in the parcel, I found about half a dozen belonging to *Strychnos nux vomica*—a quantity which would suffice to kill at least twenty persons; but the absence of symptoms characteristic of poisoning by nux vomica dismisses the admission of these seeds into the case. *Strychnos nux vomica* is an Indian plant, but we have one allied to it in *Hyænanche globosa* of the western districts, and also in *Brehmia spinosa* of Kaffirland and Natal. The latter plant is also a native of Madagascar. Among other recognisable plant-specimens were *Pilogyne ecklonii*, termed in vernacular *Davidjes wortel*, a cucurbitaceous shrub, emetic, cathartic, and diuretic; *Garullum bipinnatum* (compositæ) called "slangwortel", Anglicè, "snake-root", from its reputed efficacy in snake-bites; pieces of the stems of the *Gomphocarpus*, one of the varieties of the "Melk Bosjes" peculiar to the Cape, an asclepiad. The white, milk-like juice of this plant is very acrid and corrosive; the *Cadaba juncea*, or "zwart-storm" of the colonists (Capparidaceæ), non-poisonous; the seeds of *Plantago major*, "plaintain" (H. Bolus), comparatively harmless; and the resinous secretion from the urinary bladder of the *Hyrax capensis*, the "klipdas" or "rock-rabbit", used only as a stimulant and antispasmodic.

The following indigenous plants, mostly virulent poisons, have come under observation, in the course of the inquiry, as possible agents in the case, and are, I think, worthy of record.

Lessertia annularis, "T'Nenta" of the Karroo, produces cerebro-spinal paralysis and death in sheep and goats, like the *Gastrolobium*, the evil-renowned "poison-pea" of Australia.

Melianthus major (Meliantheæ), called locally *Truijtje roer mij niet*, Angl., "Gertrude, disturb me not", is a large, shrubby, disagreeably scented plant, occurring in patches in various parts of the Eastern Province. It has a widely creeping root. The leaves are alternate, smooth, pinnate, glauceous beneath; the flowers brown-red, an inch long, capsule four-celled, seeds two in each cell, black and shining. A decoction of the leaves is used as an antiseptic for sore-throat and various forms of ulcers. The bark of the root and stem are very poisonous. I will refer further on to some of its properties. There are four known species of this plant—*Melianthus major; M. comosus; M. minor; M. dregeana.*

Toxicophlæa (Apocyneæ), the "gift-boom", or "poison-tree" of the colonists, is a small tree or large shrub, with dark, dotted, and virulently poisonous bark. The flowers are sweetly scented, like jessamine, in dense, axillary, many-flowered fascicles. The only species at present known is, I believe, the *T. Thunbergii*. It produces the notorious arrow-poison of the Bosjesmen. Thunberg states "the aborigines use a decoction of the bark, reduced to the consistence of jelly, for poisoning their arrows". The symptoms in a case of accidental poisoning at Grahamstown by a decoction of the bark were rigors without convulsions, loss of muscular power, and death in a very few minutes. *Toxicophlæa* grows in the south-eastern parts of the colony and at Natal. Some knowledge of the nature and properties of this curious South African plant may be, to some extent, interesting in an ethnological point of view; for, now that the ever advancing footsteps of the white man are exercising so dispersing an effect on the old strongholds, as well as on the old-established customs of the aborigines, the use of the deadly little missiles of the Bushman is gradually lessening, and before the lapse of many years may probably have to be numbered among the things of the past. Dr. Hooker will, I feel confident, be glad to give further information relating to this plant to any inquirers interested. I understand some specimens of it are thriving under his fostering care at the Royal Botanic Gardens, Kew.

Ornithogalum altissimum (Asphodeleæ), termed locally "Magerman", is a large bulbous plant, bearing a tall solitary scape, which speedily withers. The flowers are white and whitish-yellow; many species. The bulb is used occasionally as a diuretic and sedative. I introduce a note on this plant, because some experienced persons have stated that its active principle is in a great degree poisonous. But this is certainly not confirmed by my own experience. Professor Mac Owan of Somerset and Mr. H. Bolus of Graaff Reinet (two able observers) also believe it to be almost inert.

But, perhaps, the most important of the genera of our suspected herbs now deserves notice. I refer to *Moræa* (Thunberg), Homeria (Sweet), called in Cape vernacular "wilde tulp". It belongs to the family *Iridæa*. The root is a corm or tuberous bulb, covered with a fibrous, reticulated, hardened coat; shaft erect, smooth; branches 2-3-flowered (Pappe). The leaves are mostly few and narrow. The flowers yellow, white, orange, or parti-coloured pedicillate, rising from crowded or subsolitary terminal sheaths (Harvey, who states that the species are numerous). This plant is to be found in various parts of the colony, and the species vary apparently in different localities. They grow plentifully throughout the Karroo, and appear to thrive in arid plains and sterile, rocky spots. We may frequently notice their pretty varicoloured flowers where little else of vegetative growth is to be seen—in dolorous-looking places, almost suggestive to the fancy of Ebenezer Elliott's

> "Grim region in a world of woe,
> Where toil-sown wheat and paupers will not grow."

The variety best known for its poisonous properties is the *M. collina*, native in the Western Province, and is the only species yet described

growing there.* The late Dr. Pappe states that, "judging from the rapidity with which death ensued in recent cases when some of these bulbs had been eaten by mistake, they must be of a very poisonous kind". The only deaths resulting from these plants (except in a considerable number of cases in cattle) hitherto recorded have been caused by eating accidentally the bulbous parts of the *M. collina;* and a comparison of the symptoms in these cases with those in the fatal cases at Middelburg gives in some respects a slightly different result; for example, in the several persons in whom *M. collina* had been the fatal agent, acute gastritis and also enteritis occurred, notwithstanding that repeated vomiting had cleared the stomach, as in the persons affected at Middelburg. Consequently, in the former instances, the mucous membrane of the stomach and small intestines was found to be highly vascular and inflamed. Such was absent in the cases at Middelburg, though other *post mortem* appearances corresponded. To the present time, the only species of *Morœa* belonging to the Eastern Province which has been described is *M. polyanthos* (Thunberg) the "tulp blommetje". It is very probable that the effects of the "tulp" of the eastern districts differ from the western in degree only, and that the one is equally, or nearly equally, poisonous with the other. Portions of dry husks and stems of about a dozen specimens of *Morœa* were found in a room of Dr. Coward's house, previously occupied by the suspected Bushgirl, and these were forwarded to me for further report. The fleshy parts of the rootstocks being absent would appear in itself to afford extra presumptive proof against the girl; for, doubtless, the active part of the herbs had been disposed of for some nefarious purpose.

Soon after the occurrence, I prepared, as opportunity offered, concentrated decoctions and extracts from portions of all substances procurable to which I have referred, and applied to these various chemical tests and reagents, comparing the results of these with others applied to extractives prepared from the poisoned soup. These I have duly recorded, and may give a detailed statement upon them on a future occasion.

Mr. Gibb, Government analyst at Cape Town, to whom I referred for a report on the nature of the poisoned soup, states that he finds it to contain "a peculiar vegetable principle similar to veratria, and highly poisonous"; and that "he believes it to be derived from a species of *Morœa*, or 'tulp'". The latter is, I venture to think, the prevailing opinion, and the impression is, that one or more of the eastern district species formed the deadly element in the case at Middelburg.

It may be sufficient that I conclude this paper by giving a brief summary of the effects on animals after administration of (1) the soup, and (2) preparations made from some of the more important of the plant-substances to which I have adverted. On March 29th, I gave six ounces of the soup to a full-grown dog. It was taken voluntarily and with avidity. Rigors set in within three or four minutes, and soon afterwards intense vomiting, which continued at short intervals for about twenty minutes, and then ceased. There were no convulsions. The dog recovered, but refused to touch the soup again, although kept to a room without other food or water for six days. On April 3rd, a teaspoonful was administered to a kitten; rigors occurred, but no vomiting. It died within three hours. At the same time, a teaspoonful was given to a pup a month old. *Very slight* vomiting, with rigors, commenced in a few minutes, and continued for nearly two hours, the animal dying within six hours. No convulsions or rigor mortis either in this case or that of the kitten.

April 23rd. I concentrated a portion of the soup, so as to form an extract, and gave a few drops to a kitten. This animal was first of all convulsed, then partly paralysed, and died within eight minutes.

April 25th. A teaspoonful of decoctum melianthi ("Truijtje roer mij niet") was given to a kitten. Frothing at the mouth and shivering followed, but nothing more serious for twenty-four hours. About a dessert spoonful was then administered. The animal was then attacked with convulsive movements, staggered gait, and general loss of muscular control. It died in less than two minutes. Considerable rigor mortis ensued. A *post mortem* examination revealed considerable venous congestion throughout, and an inflamed condition of both pericardium and endocardium. The poison had evidently acted also through the brain and spinal cord, thus causing tetanic rigidity. The bark of *Melianthus* is, therefore, no doubt, a powerful neurotic poison, but it could not have been the material used in the poisonings at Middelburg.

A decoction of some rootstocks of one species of *Morœa* (boiled for four hours) was given to a dog twice within six hours, in doses of a teaspoonful. Nothing very serious supervened on the first dose, but the second proved fatal in a little more than two hours; symptoms being vomiting, rigors, heaving of chest and flanks, and speedy collapse. The mucous membrane of the stomach was slightly congested, and a general venous engorgement existed, affecting especially the right side of the heart and corresponding pulmonary blood-vessels. Otherwise nothing abnormal could be distinguished.

On July 3rd, Dr. Coward forwarded me a small parcel containing corms belonging to another Eastern Province variety of *Morœa*. Experiments with these specimens afforded results nearly identical with those above mentioned, the very poisonous properties of this order of plants being thereby confirmed.

Alas for the glorious uncertainty of the law! The Solicitor-General has decided that the evidence in the case is nearly wholly circumstantial, and that both prisoners must be discharged on their own recognisances. But murder by poisoning is nearly always a secret crime, and I should have thought that the evidence in this case was sufficiently strong to warrant the bringing in of a true bill. In this country, where colonists are so largely dependent upon the coloured population for servants' work, it is not too much to say that whole families of innocent persons run a risk at all times of being poisoned for no other reason than that the malice of certain ill-grained and very troublesome "coloured brethren" may be indulged.

* It may be seen at the Botanic Gardens, Kew.

ABSTRACT OF LECTURES ON THE SURGICAL TREATMENT OF ANEURISM.

Delivered at the Royal College of Surgeons of England.

By T. HOLMES, F.R.C.S., Professor of Pathology and Surgery.

LECTURE VI.—*Popliteal Aneurism (concluded).—Tibial Aneurism.*

THE treatment of popliteal aneurism by genuflexion was first discussed. Mr. Ernest Hart's claim to the introduction of this method into practice was vindicated, though some hints of it are discoverable in previous French writers, and a successful case, under the treatment of Maunoir of Geneva, had actually occurred before Mr. Hart's first case, but had not been published. The actual results of this treatment, so far as it has been hitherto pursued, are not easy to discover. Certain it is, however, that a large proportion of them have been cured, and that of the rest only a few have been affected by the treatment, either one way or the other, but that, in very rare cases, rupture of the sac, or gangrene, has followed. The successful cases are usually remarkable for the absence of all pain or danger. It is a mistake to insist too much on extreme or forced flexion. Instances were quoted from the practice of the lecturer himself, and other surgeons, of the cure of the disease by voluntary, unforced flexion, involving really no distress or danger of any kind, and it was suggested that a more merciful employment of the method would probably be followed by an increase in the ratio of success. Genuflexion, however, is not likely to succeed when the sac is thin or deficient, nor is it indicated when the tumour is growing towards the knee-joint. The indications which augur the success of flexion were thus summarised: "The small size and recent origin of the tumour, the integrity and stoutness of the sac, the presence of a certain amount of coagulum in the sac, the efficacy of flexion in stopping, or at least diminishing the pulsation, and the fact that the position causes little distress, perhaps even relieves the pain in the tumour." When flexion does not either succeed at once, or produce sensible improvement in the symptoms, it is not well to persist long in its use. At the same time, in some cases, it may produce slow coagulation, as in a diabetic patient of M. Verneuil.

The mode of action of genuflexion was then discussed. All agree that it acts mainly by retarding the circulation; but there can be little doubt that the displacement of clot must also bear a part in the process, that is, that the shape of the tumour being altered, some of the lining coagula become displaced, partly or entirely, from its surface, and thus become centres of renewed coagulation, or may even be displaced into and obstruct the distal orifice of the artery, so that genuflexion may be considered as resembling both compression and manipulation. This view of the action of flexion was supported by the details of some published cases.

The less usual methods of treatment were then referred. to Acupressure (or the temporary ligature, which is nearly the same thing) was disapproved, as involving nearly the same danger as ordinary deligation, while holding out a much less certain prospect of cure. Galvanopuncture, coagulating injections, and manipulation have succeeded in isolated cases, but are only justifiable in very exceptional circumstances; and, finally, the new proposal of introducing horsehair into the sac was illustrated by a recent preparation from a patient of Mr. Bryant. Dr. Levis's case of subclavian aneurism, treated in this manner, was also