



GUJARAT STATE

Report of the Committee for Gardens
of Medicinal Plants appointed by
the Government of Gujarat



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THE COMMITTEE FOR GARDENS OF MEDICINAL PLANTS

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CHAPTER-I

APPOINTMENT AND SCOPE OF THE COMMITTEE

The Government of Gujarat had appointed a Committee for Gardens of Medicinal Plants under its Government Resolution No. D. U. C. O. 1064/927-Q. dated 5th February, 1964. The said Government Resolution reads as follows :—

I—1. “In order to prevent the manufacture and sale of spurious and sub-standard drugs and to develop the sources of raw materials necessary for medicinal preparations and also to examine potentialities of developing the gardens of medicinal plants as a State enterprise on commercial basis, and to conduct research for the purpose Government is pleased to constitute the following committee for a period of one year in the first instance”.—

I—2.

Chairman

1. Rajvaidya Shri Rasiklalbhai J. Parikh, Ahmedabad.

Members

2. Vaidya Shri Vasantbhai H. Gandhi, Bhavnagar.
3. Vaidya Shri Jivrajbhai Kalidas, Dron, District : Junagadh.
4. Vaidya Shri Vaghjibhai K. Solanki, Mundra, Kutch.
5. Vaidya Shri Vallabhrambhai V. Vaidya, Ahmedabad.
6. Vaidya Shri Vasani, Lokbharti, Sanosra, District Bhavnagar.
7. Shri Zinabhai Darji, President, District Panchayat, Surat.
8. Shri Chunibhai Desaibhai Desai, Ex-Congress President,
Sabarkantha.
9. Shri S. J. Coelho, the Director of Industries, Gujarat State,
Ahmedabad.
10. Shri R. D. Joshi, the Chief Conservator of Forest, Gujarat State,
Ahmedabad.
11. Shri B. V. Patel, the Director of Drugs Control Administration,
Ahmedabad. (Convener)

I—3. The Head quarters of the committee shall be at Ahmedabad. The committee shall be a State-level committee and its non-official members will be entitled to travelling allowance and daily allowance according to rules contained in Appendix XLII—A. to the B. C. S. R. Vol. II as amended from time to time. The Director of Drugs Control Administration, Gujarat State, Ahmedabad, will be the controlling Officer for the purpose of countersigning the bills.

I—4. The expenditure on account of travelling allowance and daily allowance should be debited to the Budget Head "29—Medical" and met from the grants sanctioned thereunder.

I—5. This issues with the concurrence of the Financial Adviser dated the 23rd January, 1964 on this Department File of even number.

I—6. Shri Vallabhram Vaidya, a member of this committee had tendered his resignation which was accepted by the Government *vide* its following Resolution :—

GOVERNMENT OF GUJARAT

HEALTH AND INDUSTRIES DEPARTMENT

Resolution No. DCO/1064/2738/Q

Sachivalaya, Ahmedabad-15, 11th March 1964.

Read.—Letter dated 7th February 1964 from Acharya Shri Vallabhrambhai Vaidya, Ahmedabad.

I—7.

RESOLUTION

Government is pleased to accept the resignation of Shri Vallabhrambhai V. Vaidya, member on the committee for Gardens of Medicinal Plants *vide* Health and Industries Department, No. DCO-1064/927/Q, dated 5th February 1964.

By order and in the name of the Governor of Gujarat,

(Sd.) H. C. JETHI,
Under Secretary to Government of Gujarat,
Health and Industries Department.

*Appointment of the Committee for
Gardens of Medicinal Plants as
a State enterprise—*

GOVERNMENT OF GUJARAT

HEALTH AND INDUSTRIES DEPARTMENT

Corrigendum No. DCO/1064/9560/Q

Sachivalaya, Ahmedabad-15, 15th September 1964.

Read.—Government Resolutions, Health and Industries Department, No. DCO/-1064/927/Q, dated 28th January, 1964 and No. DCO. 1064/2738/Q, dated,

11th March, 1964 and Government Corrigenda, Health and Industries Department, No. DCO. 1064/2981/Q, dated 18th March, 1964 and No. DCO. 1064/4965/Q., dated 17th June, 1964.

D. O. Letter No. Ayurvedic/21637, dated 12th August, 1964 from Shri B. V. Patel, the Director of Drugs Control Administration, Ahmedabad.

CORRIGENDUM

I-8.—Government is pleased to direct that the name of Rajvaidya Shri Shantilal P. Joshi should be included with retrospective effect i. e. from 28th January, 1964, as a member on the Committee for Gardens of Medicinal Plants formed under Health and Industries Department, Resolution No. DCO. 1064/427/Q, dated 28th January 1964.

By order and in the name of the Governor of Gujarat,

(Sd/.) M. P. RAVAL,
Deputy Secretary to Government.
Health and Industries Department.

I-9. The Committee was asked to submit its report within one year and subsequently an extension upto of six months was granted vide Government Resolution No. PHAM/1564/512/DH, dated 27th January, 1965, as under :—

*Further continuance of Committees for
(i) Medicinal Plants and Gardens and
(ii) Establishment of Ayurvedic Pharmacies and Expansion of existing one in the State.*

GOVERNMENT OF GUJARAT

HEALTH AND INDUSTRIES DEPARTMENT

Resolution No. PHAM-1564/512-Dh,

Sachivalaya, Ahmedabad, 27th January 1965.

Read.—Government Resolution, Health and Industries Department, No. DCO-1064/927-Q, dated 28th January, 1964 and No. ADR-1064/1258-Q, dated 1st February, 1964.

Letter No. Ayur./524, dated 8th January, 1965, from the Director of Drugs Control Administration, Ahmedabad.

RESOLUTION

I-10. Government is pleased to accord sanction to the continuance of two committees for (i) Medicinal Plants and Gardens and (ii) Establishment of Ayur-

vedic Pharmacies and expansion of existing one in the State, for a further period of six months from the date of their expiration i.e. with effect from 28th January 1965 and 5th February, 1964, respectively.

I-11. 2. The expenditure on this account should be debited to the budget head "29-Medical" and should be met from the sanctioned grants their under during the financial year.

I-13. 3. This issues with the concurrence of the Financial Advisor dated 19th January 1965, on this department file of even number.

The Committee visited the following places and arranged public meetings including those with the Vaidyas and the regional medicinal experts at every place of visit.

Tour programme to places for study of medicinal plants

No.	Head Quarters	Forest Region
1	Ahwa - Dangs 18-3-64	Subir, Pipaldadh, Kalibel, Saputara, Bardipada, Chinchli Mahal, Poorna river bank, Pipri, Bhavan gadh, Vaghai.
2	Sasan - Gir 15-4-64	Kamleshwar dam, Haran dam, Kardapan, Kapooriya, Shirvan, Jamvadi, Mandvi, Jasadhar, Kanakaimata, Girgadhda, Tulsishyam.
3	Bhuj - Mundra 26-5-64	Matano Madh, Narayan Sarovar, Mundra, Mandvi, Anjar, Bhachau, Rapar, Rudramata, Coastal line upto Koteshtar.
4	Palanpur - Ambaji 19-6-64	Danta, Jesor, Jungle of Kochari, Arasur hills, Balaram area, Dantiwada Dam.
5	Bhavnagar 20-7-64	Victoria Park, Talaja area, Shihor hills, Songadh, Khodiyar Dam, Amargadh.
6	Vansda - Bulsar 19-8-64	Jungle of Khambhala Maharaja, Tarkani, Unai range, Daman, Galonda, Selvas, Beginning of the Sahyadri hill ranges.
7	Chhotaudapur 16-9-64	Pavagadh, Shivrajpur, Dhankuva, Amba hill, Narmada river bank.
8	Botad-Palitana 20-10-64	Bhotadiya farm, Palitana, Area of Shetrunjaya Dam, Gadhda, Ghela Somnath.

No.	Head-Quarters	Forest Region
9	Patanvav - Ghumli (Trikamji's Ashram) 22-1-65	Osam hill, Gophill, Alach hill, Bardo, Kileshvar, Koliki, Jamjodhpur, Bhanvad, Porbandar.
10	Vijaynagar 30-1-65	Veereshvar, Dhol forest, Kal forest, polo jungle, Sonaghati, Panrava, Phoolwadi hills, Harnav Dam, Antarsuba, Parsoda, Kotda.
11	Santrampur Baria 26-2-65	Sanjeli, Santrampur, Lunavada, Dezar, Saptakunda, Baria, Adana, Ratan Mahal.
12	Rajpipla-Surpan 1-3-65	Satpuda jungles, Surpan, Kanbodi, Shoolpaneshvar, Bardipada, Gora, Narmada river bank.

CHAPTER - II

THE COMMITTEE GOES INTO ACTION

II-1. According to Charak Diagnosis, Treatment and Botany are the three pillars of Ayurveda.

Looking from this perspective, we can say that the main plank of Botany had vanished, during the Moghul and British regimes. Gujarat alone has taken initiative for its resurrection, and has appointed this Committee. The Committee has felt that with the discovery of myriad medicinal plants from the jungles, the public at large, students, Ayurveda research scholars and the foreigners as well, will be able to witness this important aspect of Ayurveda and also its development and the same will be a boon to all.

II-2.—The world is mutable. Night following day and vice versa is an absolute certainty. After thousands of years the Sun of Ayurveda again seems to have arisen on the peaks of the Eastern mountain. The State endeavours to rehabilitate the forests for they were full of herbal medicines prior to the Moghul regime.

II-3.—A scientific treatise on Ayurveda is available at present. Even in this age of science, it manifests itself in different forms. And the prognostication of Bhagwan Charak is quite true.

II-4.—In India, before thousands of years, there existed awe-inspiring literature in respect of Treatment and Pharmacology. In those times, laboratories worth lakhs of ruppes, atomic machinery and X-ray apparatus with which we are familiar in modern times, did not exist and yet the truth explored by Great Rishis can never be dubbed as untruth even today because the Ayurvedic literature is the universal truth of the highest order acquired by the seers of the past, present and future. This truth is not affected by human shortcomings.

II-5.—To-day in India, Medical Stores are replete with multi-coloured bottles of medicines imported from different countries like England, America, Germany, etc. including those indigenously made under the auspices of other firms. But, our green and dry herbs are nowhere noticed and if found they are not so stored properly. The poor and the rich alike spend after foreign medicines, while on the other hand, herbs in jungles, wither away crumpled under our feet. Also, for lack of adequate publicity jungles too are fast vanishing. Jungles are destroyed as Maldharis. Trees, creepers and vegetation are being devastated by cows, buffaloes and goats. They must be protected promptly otherwise they will be lost for good.

II-6.—There are a number of Ayurvedic medicines which give better successful results in comparison to popular Allopathic drugs. For example.. “सर्पगंजा” for Blood Pressure; “कडाकाल” for dysentery-these medicines are in no way inferior to any of the foreign drugs. Datura instead of Balladonna; Rubia cordifolia.

Tinospora cordifolia "त्रिफला" the internal bark of Nim, and *Hemimesmus indicus* for blood disorder; *vitex negundo* and the root and rootlet of castor seed for elephantiasis; *Terminalia Arjuna* for Heart disease; *Adhatoda Vasika* for leprosy; *Bharangmool* for Asthma; *Tephrosia purpurea* for spleen—these medicines are such that they produce wonderful effects despite their being quite ordinary. *Kunvarpathum*, *Rhamnus wighti*, and *Tephrosia purpurea* of Ayurveda are proved medicines for liver diseases.

II-7.—There are also a number of medicines restoring the Balance of "दोषघातु" with efficacy proved greater than the various popular foreign medicines. When foreign drugs do not bring forth desired results in certain cases of jaundice, inhalation of extract of *Luffa echinata* (Devdali) and oral Administration of *picrosma Kurroa* jaundice is promptly cured. *Rhamnus wighti* works in cases of "प्लीहोदर" and liver disease. The Forest Department has well nursed this *Rhamnus Wighti* in the nursery near Champaner and has cultivated it on a fairly large scale. The Committee appreciates the same. By applying thickly the juice of "नागबला" and by its use, the pain of dangerous wounds is soon relieved.

II—8. The Ayurvedic medicines are wonderful and they defy the chemical test because, the physical elements of such medicines can be found but how can their efficacy and effects be deduced? For example, ginger is pungent in taste but sweet in effect. How would this be got found in the laboratory? Meaning thereby, that the research by the Arya has been made intuitively outside the precincts of physical laboratories and is backed by experience of thousand of years. The Committee has made inquiries even in jungles. One Rajput fellow, near "माताना पीपळिया" fought with a tiger and sustained a serious wound. He applied the plaster of *Sida cordifolia* because Ayurved-found herbs are wound-healing and these herbs have been given publicity. By applying the plaster of the medicines of *petro carpus santa linus glejeyrrhiza glabra*, *Berberis aristata* even outside the skin, they are sucked up within the body because they are homogeneus and their effect has also been observed. It has been stated in the Science of Ayurveda that some medicines cure by their "रस", some by "वीर्य", some by "विपाक" and some by efficacy. Medicines of "समान रस" differ owing to "वीर्यभेद" Medicines of "समान रस" and "वीर्य" differ owing to "विपाक भेद" and medicines of "समान रस वीर्य" and "विपाक" differ owing to "प्रभाव भेद". It is impossible to know the miraculous "विपाक" and inscrutable efficacy by the aid of machinery because as Charak says "प्रभावस्तु अचिन्त्य"

II—9. It cannot be legitimately asserted that by chemical test or analysis the overall experienced qualities of medicines are manifest. Major Chopra has by chemically testing the popular medicines such as *Boerhavia Diffusa* has held it to be a good diuretic medicine; but if any ordinary Vaidya is asked about its qualities he will immediately declare it to be diuretic and remover of swelling. Thus, the talk of the testing fully through chemical analysis the qualities perceived through experience is of no avail. What is the use of wasting money by discovering that which is already discovered? Also it is not good to take up an activity in vain. It is not desirable to squander money by rediscovering the proven medicines in the name of science in this way particularly in a poor country like India

II—10. Looking to all this it is commendable that the Great Rishis have by undertaking deep studies, identified the plants “ रस, वीर्य, विपाक, गुण ” and efficacy of the herbal medicines. It is quite necessary to-day that we get acquainted with these herbal medicines, know their qualities and characteristics and also the methods of their use from the particular science of these medicines and also that we may collect these useful medicines and place them before the public at large. The medical science has stated Boerhaavia Diffusa to be diuretic and a remover of swelling. Ignoring that for a while it is an enormous task to realise its qualities by making an experiment on it in a quite different way. But it is easy and less expensive to find out, by experimenting it on the patients, whether it is diuretic and remover of swelling or not. The Committee realised this by the fact that these herbal medicines, e. g. Boerhaavia diffusa, are used by the Tribals only as diuretic and in cases of swelling and they know its immediate reaction.

II—11. “ पुट ” which are to be given in Rasa Shatra are only that of the herbs and most of the herbal medicines which are used for these Rasas, have been found in the forests of Gujarat. For this also, the van udyans will be important for procuring green herbal medicines. Through the “ पुट ” and “ भावना ” of these green “ रस ”, the qualities of the herbs are augmentative Charak Writes “ संस्कारो हि गुणान्तरं ध्यानं मुच्यते ”.

CHAPTER - III

PROCEDURE ADOPTED BY THE COMMITTEE

III-1.—The Committee has made an effort to gather all possible information by moving in jungles of Gujarat mostly on foot and also by getting into touch with Tribals conversant with these herbal medicines. The Committee has also studied the herbal vegetation of jungles by travelling miles and miles on foot. Looking to all this the Committee has felt that most of the herbs which Charak has prescribed for human beings are to be found in mountains and jungles of Gujarat even to-day. The Committee has studied various herbs in all the three seasons viz. Summer, Monsoon and Winter. Braving heavy downpour the committee has laboured in discerning the herbal medicine like *Ougeinia dalbergoides* in Chhota Udepur and the Committee has also been able to contact some of the Tribals during this tour.

III-2.—The Committee has moved with great speed. At some of the places, the committee has kept on touring right from 7 A.M. to 7 P.M. and has associated the villagers, Bhils, Cow-herds, shep-herds, Girasders, Ex-princes etc. of the respective villages in this work.

III-3.—The Committee had an opportunity to discuss this matter for three and half hours with the Maharaja of Bhavnagar who stated, "If this work of growing and transplanting these herbs and of locating their sources in India is undertaken in an orderly way it will be a tremendous service to 44 crore people of India." Herbs provide a source to the scientific preparation of most of the drugs and they can also be exported.

Further, the committee has frequently interviewed the M.L.A.s. The Committee has met collectively to the extent possible the Viadhyarajas in the areas of jungles visited by it and has also gathered sufficient information from them.

After investigating properly the committee has furnished data about the herbs and the respective regions wherein they grow. Due to lack of time, the Committee has not been able to fully explore the innermost regions of the hills but if the research in this direction is further extended, the Committee has been told that the herbs like Mahameda "महामेदा" of "जीवनीयगण, काकोली, क्षीरकाकोली, ऋषभक जीवहक" can also be had from the hills near Chitravichitra and in the Ashram of Choovan known as Bhavnath on way to Bhiloda and also from other jungles. Besides this, tubers have also been found. The committee has also seen tuber weighing upto a maund or two. Today in America, trees thousand or two thousand years old are to be seen. The same position would have been obtaining in India also but the plantations have been made with an eye on trade and our precious herbs have been lost during this period. The Committee has, however, seen a Kadamba tree 500 years old and a huge *Adansonia digitata* tree having 40' circumference in polo jungles in Sabarkantha district. The Committee definitely feels, after intensive and extensive investigation, that after independence, the herbs are being destroyed alongwith other forest wealth.

III-4. The opinion of Charak that innumerable herbs are available in the world, but research should be concentrated on those medicines as are homogenous and profoundly beneficial to mankind. With this view, the medical plants found to be useful to mankind have been referred to in this report.

III-5.—Charak has also stated that inhabitants of jungles like the Tribals, Bhils, Shepherds, Cow-herds, Kathodis and other foresters are conversant with these medicines *viz.* they know their names, nature, etc; and the committee has felt that these people should be specially trained in this aspect right from the primary school, so that they can grow these herbs and thereby also preserve the nation's wealth. Moreover, during primary education, they should be put in touch with important works like "मदनलाल निषट्ट". The Committee, while touring the jungles, mountains and the coastal area in Gujarat has observed that most of the rural populace of Gujarat cure the diseases with the help of roots, fruit, barks and juice of these herbs and their experiments are also on lines of Shuddha Ayurveda.

Very few persons are conversant with these medicines today and as the people following 'गुरु प्रणालि' have preserved Ayurveda, in the same way these people have preserved the knowledge of these herbs. A scheme should be devised for encouraging such persons.

III-6.—The Committee, during its tour of Sabarkantha district, has seen numerous groves orderly arranged in the jungles of that district. The sight of thousands of flourishing trees of Fagle marmelos, Holarrhena, Diospueros embryopteris, Terminalia bellerica, Terminalia arjuna, Gmelina arborea, Randia dumetorum and Phyllanthus Embellica grown side by side has convinced the Committee that planned and special efforts were made in this regard by the former Rulers. During the British regime, instead of growing such useful herbs, Teak trees useful to trade were planted. The Committee feels that though the Teak trees may flourish it is now high time that the herbs which are invaluable are grown systematically..

III-7.—In order to explore the herbs of Gujarat, the Committee has covered all the four regions like rivers, mountains, plateaus, jungles and coastal area as well as brooks and streams. A list of local herbs is appended to this report. After touring these regions the committee has felt that Cassia augustifolia can be planted in abundance in the Gir. Trees of Terminalia chebula yielding lakhs of rupees can be planted on Amba Hill and near Saputara in the Dangs as well as near Saler-Mular on Don Hill (Dangs). Tubers can be planted on a large scale in Vansada-Dharampur, Selvas, and Jesor. The Committee has seen some of the residuary herbal plantations of the Maharaja in Sharad Baag of Kutch and the same are referred to by Charak. The Committee is of the opinion that this garden is an asset and the trees like कमलापति are also to be found there.

III-8.—During the course of the tour, the Bardipada portion of Dangs, the Kileshvar portion of Barda, the polo jungles in Sabarkantha, the Victoria Park of Bhavnagar and the surrounding forest area of Machi in Pavagadh have been found to be most important for the gardens of medicinal plants.

III-9.—During the course of the Committee's tour in Sabarkantha, Shri Hamirsinhji, the Maharaja of Vijaynagar had accompanied the committee and had taken the trouble to show the jungles extending upto Panarava in Rajasthan, and the Hills of Sonaghati and Phoolwadi. Moreover, during the tour of Kutch Shri Ramsinhji Rathod, in the jungles of Selvas Shri Bankapur, in the jungles of Barda Shri Tolia and during the tour of Amba Hill and Gir Shri Karamchandani and during the tour of jungles of Sabarkantha the Chief Conservator of forests Shri Joshi toured with the Committee and even halted overnight and removed many of the hardships felt by the committee. Shri Joshi also toured with the Committee on foot. The number of patients in hospitals in Gujarat, where such divine medicines are abundant can definitely be reduced if gardens of medicinal plants are cultivated. The Committee would like to see that the Ayurveda Hospitals equipped with facilities of pharmacology and diagnosis should invariably be established in the jungles of such compact Tribal forest areas, where various medicines are found to be lying.

III-10.—Shri Vallabhram Vaidya also moved with us in the jungles of Pavagadh.

III-11.—So many herbs are still known by their Sanskrit names among the foresters inhabiting the jungles, such names have undergone slight changes. For example, the herbs known as "नसोतर" in Gujarat is called "तरवट" Tarvat by the Tribals. The Sanskrit name is "त्रिवृत्" Sanskrit names facilitate identification of medicines. "त्रि" means three and "वृत्" means edge. Thus, "तरवट" is a corruption of "त्रिवृत्" Trivut. This creeper has three edges. Similarly, the Committee found in Dhol forest and Kal forest many "टेंटा" trees used in "दशमूल" and the word "टेंटा" at once indicates thin and slim trees. "टेंटु" conveys thinness. Names such as "सेवन, बिलवासा" have become customary among them. Further, such names also occur in the spoken language which are not to be seen in the "निघंटु" but the Committee has taken pains to ascertain the names by which all these medicines are known in Ayurveda.

III-12.—In India, Ayurveda was being taught since the Guru tradition. Some such Ashramas were seen by the Committee in ruins in the jungles. For example, the Ashrama of Chyavan Rishi is near Bhavnath Bhiloda and the Committee is of the opinion that Vat palli-a faculty of Ayurveda must be in the jungles near Shamlaji and Dhanvantari Vad must be in such other place in the jungles near Gir. Thus, Students desirous of being vaidyas used to stay with such Gurus in jungles and in their daily routine work, they came to know the names and nature of these herbs. Charak also eulogises the Vaidyas who recognise the medicines and also know their proper application. The ancient Vaidyas, therefore, must be knowing these two processes. On looking at Embellica officianalis, he used to visualise the greatness of "घात्रीफल". The members of the Committee have also experienced pleasure at the sight of these herbs. Moreover, there are so many experiments in Ayurveda wherein homogeneous herbs are found to be in juxtaposition. For example, for boiling Embellic officianalis a pit had to be dug in the green tree of Butea monstera and the Committee has witnessed the trees of Embellica officianalis and Butea monstera in juxtaposition in the Gir forests and near Harnav Dam. There are also such efficacious medicines lying dormant in Gujarat such as Butea monstera

bearing white flowers near shapur and in order to explore them the committee has toured extensively.

III-13.—Herbs of अभयादिवर्ग, शुंठ्यादिवर्ग, कर्पूरादिवर्ग, वटादिवर्ग, द्राक्षादिवर्ग, कुष्मांडोदिवर्ग, अक्षयुक्त्यादिवर्ग, गुडुष्यादिवर्ग, are found almost everywhere in the jungles of Gujarat and the members of the Committee have identified them even by walking eight to ten miles.

III-14.—The Committee has considered all the detailed information indicating which are “आनुप” regions, jungle regions and ordinary regions in Gujarat, where T. B. Hospitals in dry climate can be established where Pharmacies can be established, which places are suitable for the post-Graduate Courses and from where raw medicines can be available and where they can be stored. In arriving at the decisions in all these matters, the officers of Forest Department have extended ready co-operation.

III-15.—A Vaidya stranger to “निघंटु” i.e. not familiar with medicines and their attributes, a Rasavaidya without experience at the feet of Guru and a Surgeon without the practice of using operational equipments all these three are liable to be ridiculed. Thus to see that even amongst the Vaidyas the importance of identification of the herbs is not lost and they do not become ridiculous and also to see that the power of identification in the Vaidyas may be enhanced, the function of this Committee appointed by the State of Gujarat would serve as a mile-stone to the whole of India.

III-16.

III-17. During the tour, the Committee has seen towards Poshina and Kotda Camp, jujube trees grown near almost every house of Bhils. The Committee has seen many ladies watering Banyan and Ficus bengalensis trees and rearing the ocimum sanctum in earthen pots. Those who chew its leaves do not suffer from mouth odour. The Committee has also come across avenues of Embellica officinalis trees planted by the Gondal State at some distance from Upleta road sides.

In Dangs, most of the villages bear the names of herbs. The Committee has learnt from experience that the name of the Lord Krishna was associated with the Kadamba tree near Veraval. The Committee has also seen the Ficus glomerate tree having 20' circumference being worshipped near Veereshvar and has also seen how in the Ayurveda Hospital at Surat, a case of blood passing in stools was cured by administering through anema and also orally the water extracted from its roots. The name of Ayurveda has also been associated with the Dhanvantari Banyan tree. Looking to all these facts, the committee has felt that the greatness of medicinal plants has been accepted in every home in Gujarat. The Committee, therefore, feels that this scheme of gardens of medicinal plants will be specially welcomed by the people of Gujarat and the scheme will be a boon.

III-18.—Trees and herbs which are rare in Gujarat can be grown. For example, if piearrheza kurroa, Aconitum hetenoply mum Pistacia infegerrina are planted here afresh, we may not have to depend on others. The Committee

is of the view that this work may be taken up either by the Health Department itself or it may create a separate new department to look after the growth and preservation of these herbs under Forest Department.

III-19.—Maharshi Vagbhatt has coined a dictum in Ayurveda, viz., “यस्य देशस्य यो जीवी तद्देशजम् औषधम् हितम्” which means, only such medicine is beneficial to a person, which is produced in the country of which that person is an inhabitant. On the strength of this principle, the Committee is of the opinion that the scheme of gardens of medicinal plants will be successful in Gujarat. Everlasting prosperity of Gujarat depends on its forest wealth. The reasons are neither heavy nor scanty rains but moderate rainfall and secondly the multiplicity rivers and hills.

III-20. Out of eight types of honey almost all are to be had in jungles of Gujarat. “माक्षिक, भ्रामर, घक्षोद, पौत्तिक, छात्र, अर्घ्य, औदालाक, and दाल,” these are the eight types of honey. In Gujarat also it is feasible to collect honey on large scale as is being done in places like Mahabaleshvar, etc. through apiaries.

III-21.—Besides, potentialities exist for the growth of Bitumen at places like Baroo, Kutch, Jesor, etc. A Special Committee should be appointed for this.

III-22.—The Committee had set out a Special questionnaire in respect of herbs found in the Dangs. Suggestions received from many Vaidyas have been also considered by the Committee.

Maharshis Vagbhatt and Charak have also emphasised the growth of herbs in soils which are good and free from any fault.

Herbs which are not decomposed and rotten and which do not grow indiscriminately but grow only in suitable regions and in suitable soils, are full of “रस” and wholesome. The State, therefore, should set apart for gardens of medicinal plants fertile land in Mahal and Barda and comparable to Victoria Park at Bhavnagar.

At present, Kalmedh is being used instead of swertia pure chiata in medicines like Sudarshan. Seeds of Lawsomia alba are being used instead of spurious “वांस कपूर” is being used in the popular cough-powder “सितोपलादि” Roots like “दशमुल” also are not genuine. Nimleaves are being used instead of Nim-bark. Instead of the essence of Tinospora cordifolia, the powder of “आरारूट” is passed on with the addition of bitter taste. Instead of genuine weighty Myrobalans, yellow myrobalans used for dyeing are being used. Instead of Hydrocotyle asiatica, Me. repira Enxargenta is used. All this has brought Ayurveda in disrepute. To ensure the supply of pure materials to the people, the Committee has taken pains and has endeavoured to find where genuine herbs grow and has also furnished complete information as to how and where they can be grown.

CHAPTER - IV

OUTLINE OF THE PROCEEDINGS

IV-1.—When the Committee first met Hon. Shri Mohanlalbhai Vyas said “The members of this Committee, are more conversant with the medicinal plants and I hope, this Committee will tour the forests of Gujarat and complete the task entrusted to it, within the stipulated period. With this in view the Committee chalked out its tour programme and concluded its touring within the stipulated period as under. The Committee has contacted, hermits and saints, native rulers and also others devoted to this.

IV-2. *Hills and forest areas.*—While touring the hills of Gujarat where mainly the medicinal plants grow, the Committee had selected the hills of Dangs, Gir mountain, Salemar hills, Dezar and hill of Saptakund near Kadaya, Shihori hill, Talaja hill, Kalo Dhinodhar-Chalvo and Dholo hill, Bardo hill, Osam hill, Jeshor hill, Arvalli hills, Satpuda hills, Pavagadh, Sahyadri range, Amba hill Arasur hills, Shetrunjaya, Rampur hills, Ratan Mahal hills, etc. which have potentialities for such a growth.

IV-3.—*Rivers and forest areas.*—The Committee has found the banks of Gira, Ambika and Poorna rivers (Dangs), the Narmada bank from Garudeshvar to Shoolpaneshvar upto the boundary of Gujarat, some of the portion on the Tapi bank, the banks of Vishvamitri, Dhadhar, Mahisagar and Sabar rivers, the banks of Saraswati (Siddhpur) Banas, Harnav (Sabarkantha), Shei Poshina Meshri Panchmahals, Panan (Panchmahals), Karjan (Rajpipla), rivers and of the river near Balaram, Orsang, Shetrunji (Palitana), Ghelo, Gadhdha Hiranya, Raval, Shingvado, Matsyendri river, Gir, Bhadar, Damanganga and Sarasvatiganga, and most of the portions of the bank (Narmada bank) near shoolpaneshvar to be rich sources of herbal medicines.

IV-4.—*The Coastal line.*—Some portion near Daman, some portion near Bhavnagar, Coastal line near Tithal, Narayan Sarovar and the adjoining coastal line (Kutch) and the coastal line near Veraval.

IV-5.—*Jungles in the plains.*—Forests situated on the plains include Gir forest, Victoria Park, jungles of Vansda Dharampur, Sharad Baag, jungle of Chadva, jungle of Danta, jungle of Shivrajpur, jungle of Chhota Udepur, Poshina track, jungle of Soorpan.

IV-6.—*Ashrams of Maharshis, and other persons, who are staunch believers in the efficacy of medicinal plants in Gujarat.*—Ashvini kumar (Surat), Bhругu (Broach), Vishvamitra (Pavagadh), Kashyap (Kutch), Galavmuni (Mahisagar), Gautam (Shihor), Vashishtha (Abu-Jesor), Atreya (Girnar), Chyavan Rishi Bhavnath (Sabarkantha), Brahma (Khedbrahma), Dronacharya's Ashram Dron (Gir-Gadhda) and Markandeya Rishi near Chakra teertha, Sur Paneshvar.

IV-7.—*Meetings.*—The Committee, in the course of its tour, had discussions with prominent persons at respective places and had also arranged for joint meetings and thus it had collected all the information that could possibly be had. The Committee held meetings under the presidentships of Sarva Shri Chhotubhai Nayak in Ahwa and Baroda, Bhailalbhai Vaidya in Bhuj, in the college of forest Department in Chhotaudepur, in Bhavnagar College, in Shri Krishna forestry Research Ashram, in the foot hills of Girnar, in Kanubhai's building in Gadhdā, and at the time of condolence meeting (to mourn the death of Shri Jawaharlalji) in Nakhatrana, and also among the Bhils in Kanbodi (Dediapada) in Shri Madhavsinhji Barot's house.

IV-8.—*Meeting with native Rulers.*—The Committee had an opportunity to see the deep attachment of the native Rulers towards medicinal plants and Ayurveda, and the Committee had been fortunate enough to obtain their co-operation. His Highness the Maharaja Krishna kumarsinhji of Bhavnagar, Shivbhadrasinhji of Palitana, Hamirsinhji of Vijaynagar, Jaideepsinhji of Deogadh, Baria, Raghuveersinhji of Rajpipla, Rajendra Saheb and Nana Maharaja Saheb, Shri Naharsinhji Saheb of Chhotaudepur had met the committee in Rajpipla.

The Maharaja Saheb of Rajpipla, welcoming the Committee, declared his faith in Ayurveda and averred that if genuine medicines in adequate proportions are well prepared, they are highly beneficial.

Nana Maharaja Shri of Chhotaudepur said that there was coupe system in jungles during the times of Princely Rules, and the entire jungle was not cleared when small coupes were felled at 20-25 years and hence the medicinal plants were preserved and that there was strict supervision by the State. Not all the trees were indiscriminately allowed to be felled by the contractors, licences were given for certain types only.

Hon. Maharaja Shri Krishnakumarsinhji of Bhavnagar disclosed before the Committee during his 3 1/2 hours' interview, "It is futile to raise a hue and cry in the name of culture so long as we do not model our lives on that pattern. Our culture should be a way of life with us for it is not a matter that needs propaganda. Our nation would be prosperous only when our culture is reflected in our daily life. These gardens for medicinal plants would really be a boon."

The Maharaja Shri Jaideepsinhji of Deogadh Baria said, "Members of the family and myself have faith in Ayurveda. It is beneficial, if pure materials are available."

The Maharaja Shri Hamirsinhji of Vijaynagar said, "We have in our country inexhaustible sources of invaluable medicinal plants, which, if protected and patronised by the State can cure our various diseases and the country can truly flourish". The suggestions of the Maharajas were also taken into account by the Committee. The jungle tour was thus a success.

IV-9.—*Meetings with the Vaidyas.*—The Committee thought it worthwhile to contact different types of people. Thus contact of the Vaidya community was highly essential. It included Baroda Vaidya Sabha, Bhavnagar Vaidya Sabha

Kutch Viadya Sabha, Vaidyas of Bansda, Palitana Vaidya Sabha, Vaidya sabha in Dabhoi Charitable Dispensary, Vaidyas of Jam Jodhpur, Manharlal Maganlal Dave of Rajpipla; etc.

IV-10.—*Meeting with Adivasis.*—The Adivasis who have not come in contact with the so-called urban modern civilization and who reside in jungles with their characteristic dignity, have offered considerable inspiration to the Committee in its functioning. The Adivasis have shown medicinal plants growing even in the depths of hills, rivers, jungles, etc. These Adivasis include Adivasis of Dangs, Bhils of Satpuda, Adivasis of Chhotaudepur, Adivasis of Selvas, etc.

IV-11.—*Meetings with Saints and Hermits.*—We have often stated that the saints and hermits have played a major role in keeping Ayurveda alive. The Committee has noted this and has contacted some of the saints and hermits and has also associated them with this task. These include Shri Charanteerth of Gondal, Maharaj Shri Narayan Sarovar (Kutch), Mahant Shri Karamsinh, Mahant Shri Ghela Somnath in Mata's Math (Kutch) Gadhdha, Mahant Shri Parmananddasji (Veraval), Muni Shri Kalyan Chandraji (Songadh), Pujya Ravishanker Maharaj, Priyatam Muni, Ramesh Muni, Mahant of Devgadhi Baria Bordevi, Mahant of (Girnar) Kileshvar, Swami Revanand, Gupteshvar Charuva Dist. Hoshangabad and Kaliyanath Shivnath, Aghori's Nala Omkareshvar on the bank of Narmada.

IV-12.—*Members of the Legislative Assembly.*—Ratubhai Adani (Juragadh), Govindbhai (Kolki), Nanjibhai (Jam Jodhpur), Madinababen (Shapur), Maharaja Shri Jaideepsinhji (Devgadh Baria).

IV-13.—*Books.*—Books referred to by the Committee in the respective regions during its tour are as under :—

<i>Name</i>	<i>Author</i>
1. Herbs of Banaskantha	English author
2. Medicinal plants of Gir.	Sher Mohamed
3. Herbs of Sabarkantha Part I and II.	Rasiklal Parikh
4. Herbs of Dangs.	Rasiklal Parikh.

Other books referred to include herbs of Kutch, Aushadi Kosh, Shaligam Nighantu, Bhav Prakash Nighantu, Madanpal Nighantu, Nighantu Adarsh, Indian Medicinal Plants, Vanaspati Gunadarsh, History of Revakhand, Jungleni Jadibutti Vanspati Srushti, etc.

IV-14.—In this report, a reference has been made to the herbs seen by the Committee at various places at different times. Other herbs may also be growing at those places, because in summer due to heat certain small plants might have withered and hence might not have been noticed by the Committee. So it is not to be construed that this is an exhaustive list. The Committee believes that season-wise further research should also be made.

CHAPTER - V

THE DANGS

V-1.—The Dangs region is situated at 21° latitude towards the North and 37° longitude towards the East in Gujarat. It is entirely a forest area. It is 657 sq. miles in area wherein more than 4 lakhs 22 thousand acres comprise land and its population is 70 thousand. The forest area of about 2 lakhs acres is of "Reserved" forests while forests in 2 lakh acres are "protected" forests, which people are allowed to cultivate on "Eksali" basis by payment of Rs. 6.50 P. per plough. Even in protected jungles, there are thickets, valleys, mounts and hills also. Out of these 2 lakh acres, 1 lakh acre land is under shifting cultivation. In this region, rivers like Ambika, Gira, Harna and Khapri etc. start from here and flow throughout the whole region. These rivers, extending themselves further, touch Bilimora and Navsari, cross the Railway and ultimately meet the Arabian sea. These rivers have played a major role in enriching the jungles of Dangs. As this region is rocky and steep and rocks in the riverbeds are full of crevices, the rain water, while flowing towards the low-lying areas, percolates in the earth. As a result of this, this district suffers from acute shortage of water in summer. As the water goes deep into the earth water levels in wells are very low while in Sabarkantha, rivers seem dry from above the surface but the water flows underground and hence, Sabarkantha appears quite green even in the midst of summer.

V-2. The Committee has gathered considerable data in the region of the Dangs about the people, the peculiarities of its jungles, the timber trees in jungles and the Ayurvedic herbs found in abundance in the jungles. The Committee, however, is of the opinion that a very deep study is required to formulate detailed reports in respect of this region which is full of various types of Ayurvedic herbs and for getting a complete picture of the source of Ayurvedic herbs of the Dangs.

V-3. The whole region is famous for its timber such as Bulsari Teak etc. and is assured an income of about Rs. 1.25 crores. Since some years past the "Dangs Development Fund" of about Rs. 4 crores has been created out of the amount of savings effected after defraying expenses from the income from the Dangs and therefore, considerable amount can be spent after development in the Dangs. Many years before, some interested persons and experts had taken pains to bring out some information about the Ayurvedic herbs in the Dangs, but no action whatsoever, has been taken in that regard. This Committee has, during its tour, seen heaps of useful herbs in Dangs, such as Myrobalans, Embellic myrobalan, Ipomoea peniculata, Terminalia arjuna and Acacia catechu lying in Dangs.

V-4. There are forests like Kalvan and Dholvan in Sabarkantha while in Dangs there is a forest which is known by the name of Dandakaranya. The Committee has been given to understand that Bhagwan Ramchandraji had spent some years at this place. Description of incidents of Ramayana occur in their folk dances and ballads, and this entire region being part of Gujarat, the King Karanghelo of Patan had sought asylum in the fort of Saler muler. The language also resemble

Gujarati. Out of about 500 Ayurvedic herbs nearly 300 to 350 are available in Dangs. The Committee has come across vegetations, herbs and creepers during its short tour. In Dangs, no special attempts are been made for plantation and preservation of herbs. On the contrary, though the development of the jungles of Dangs is made with the view of preserving and expanding the growth of timber and though in the protected forests, cultivation for Kharif crop of inferior type is undertaken, it is a matter of joy and wonder that so many Ayurvedic herbs are still preserved. Further, this very fact indicates that the hills, valleys, river-banks, rains and climate of the region of Dangs are suitable to the Ayurvedic herbs. Public at large may perhaps not be conversant with this but the people of Dangs freely avail benefits of these herbs for major and minor complaints and diseases in almost every village. These herbs are known by their local nomenclature and the local people within no time, bring requisite herbs and utilise them for desired results. They have an inherent sense in this respect and Ayurvedic as well as the State stand to gain by this.

This jungle of Dangs gets 80" to 100" of rains. As the Britishers had the object of production of teak, the same is being improved since many years. This improvement has, however, been made in respect of teak and not in respect of herbs. The jungle of this region has been divided in two parts. One is of "Reserved forest" or a closed area wherein are protected different types of herbs because none can enter this closed forest. One can enter only with permit and hence, wood, plants or grass can not be had therefrom completely. Cattle again are also not allowed to graze therein and the reserved forest, therefore, is protected. The other part is called the area of "protected forest" wherein one lakh acres of land are cultivated piecemeal. This protected forest also consists of thickets, vallays, mounts, hills, etc. The management of these forests is with the Forest Department.

V-5.—An idea of the herbs seen by the Committee in Dangs, their importance and their abundance can be had from the following. In Dangs, the herbs available during all the six seasons exist in such abundance that if an arrangement is to be made in respect of their exploration, collection and demonstration, an adequate stock required for the whole year can be made available. 1. Phanerogamus *i. e.*, vegetations bearing fruits after getting flowered, such as cassia, fistula, Mimosa, elengi, Albizzia lebbek, etc. are available in abundance here in Dangs. 2. Cryptogamus *i. e.* vegetations bearing fruits directly without getting flowered, such as Adiantum lanulatum, cocculus vilosus, Banyan, tree, Ficus glomerata, etc. are also available here in good amounts. 3. Medicinal creepers like different types of Tinospora cordifolia are profusely grown in Dangs. 4. Tubers of various types like Ipomoea paniculata weighing one to two maunds are formed in many a place. 5. Seasonal vegetations such as Cissampelos Pereira "चितरो" Asparagus recemosus, etc. are also found in considerable amounts in the Dangs. 6. Quite ordinary but effective Ayurvedic medicines like Egle marmaloso, premna integrifolia "शेवण" cissampelos pereria Droxyllum indicum Alysicarpus longifolius "गंधी समेखो" etc. are found everywhere. This is a matter of pride for any admirer of Ayurveda. Many beautiful trees of Oroxyllum indicum are seen near Mahal. 7. Thickly grown trees of Semicarpus anacardium, a very important medicine in Ayurveda, are found near Kalibel Ashram, because semicarpus anacardium has been proved to be very useful in complaints of cough and gout. The local people call it 'Biblo' and they avail of it very cautiously and effectively. If it is planted on a wide scale

the Committee believes that it can have a large market for the whole of India.

8. The three myrobalans of Ayurveda is a household remedy in Gujarat. All the three types useful in its preparation. viz. terminalia chebula, Terminalia belerica and Embellica are officianalis plentifully available in Dangs and are lying almost unused. If they are put to use, it can be beneficial to Dangs, the State and the Society at large, Saputara and the Don mount near Salar are suitable places for growing terminalia chebula. Both these places are at an altitude of 3,000' 9. Other useful medicines such as holarrhena antidysenterica, wrightia inctoria cassia fistula, Anthocephalus indicus Acacia catechu, Erisbendron anfractuosum, Terminalia Arjuna, Adansonia digitata, Bauhinia purpurea, etc. are available in large amounts in Dangs. 10. Tacca aspera " बाजकंद (कडु) " " हरडियो ताड " Amorphophallus, are found here abundantly. This Amorphophallus is being used for healing piles. People here, administer it orally with curd after getting it boiled with the tamarind leaf. 11. Medicines containing volatiles such as cymbopogon scheonanthus, Eucalyptus, etc. grow in abundance in Dangs. 12. Vegetations useful for preparing gum-plasters for skin diseases, such as datura alba, Lippia nodiflora, Cassia tora Cassia sophora and wax are found in considerable amounts in this region. 13. Innumerable trees of " गुग्गुलु ", Bauhinia purpurea, which cure Rheumatism and swelling of throat are also found here in Dangs. 14. Boswellia Serrata very useful in the disease of leucorrhoea salmali malbrica Tinospora cordifolia, sealing wax etc. are also abundantly available in Dangs. 15. Berberis aristata out of which a valuable medicine like " रसवन्ती " is prepared for curing swelling, is also available from Dangs. 16. श्वेतपुनर्नवा and Butea monosperma meant for eye diseases are also found in abundance. 17. Nowadays many persons suffer from Diabetes for which वांसना जव are available here in tons and local people also avail of it to a large extent. Side by side, Bitumen in small quantities is also available. 18. Out of 600 medicinal purges indicated by Charak, some are for small intestine, some for " ग्रहणी " and some are for big intestine. It appears that most of these medicines can be had from Dangs for which it is necessary to appoint a Research Committee. 19. For inducing Vomiting, many items have been mentioned in Ayurveda out of which Randia dumetorum, caphalandra indica bitter turia, lagenaria vulgaris Bristly buffa, holarrhena antidysenterile etc. are found in large quantities. 20. Vegetations out of which " क्षार " are prepared such as " चित्तो ", Calotropis Gigantea trees, Achyranthes Aspera, Butea monosperma, etc. are available in abundance. 21. For prevention of diseases like small-pox, etc. these people avail of seeds of wild plantains which are found here in large quantities. 22. For healing of wounds, " नागवला " Thespesia populnea, Ficus religiosa, Banyan tree, Ficus glomerata etc. are abundant here. 23. Here, all the eight types of honey are found scattered in jungles. Four to five types of sealing wax and four to five types of Gugal are available here. 24. For diseases of the mouth Cassia Auriculata, babul trees and jujuba trees are also found scattered in Dangs. 25. Medicines useful for purification of Dhatus and as antidote which can contain mercury, such as " कृष्ण भृंगराज " " शखावली ". Aegle marmaloss, etc. are available in adequate quantity. 26. For " आसव " and अरिष्ट and for leavening, flowers of woodfordia flouribunda and those of mowra trees are plentiful. Also the wood for preparing barrels for preserving such " आसव " and persons able to prepare such barrels are available. All these medicines listed by us are purchased as raw materials by the pharmacines of Gujarat from outside but they are in shortage for want of quality. If, therefore, gardens of medicinal plants are reared, this Committee believes that the pharmacies of Gujarat will not suffer from shortage of genuine raw materials and pure medi-

cines and thus the Government will not run in loss thereby and the Ayurveda will be in high esteem due to the availability of pure drugs.

V-6. This Committee feels that in this region of Dangs there is a hilly region named Saputara near the village Male near the hilly region named "Don" near saler and it is a place situated at an altitude of 3,000. There also, vegetations growing on high altitude can be very suitably planted and in valleys and on river banks, in the area named "Kot" and "Bardipada" and "Mahal" a garden of medicinal plants can be reared. This Committee believes that on the lines of the plantation of hundreds of trees of holarrhena antidysenteric Aegle marmaloss, Randia, dumetorum etc. found en route Vijayanagar to Panarava, if a systematic plantation is taken on hand in this region, it will prove to be the most beneficial and economic in the long run. In this plantation, some items can be grown by bringing them from outside for example, we saw a full fledged tree of cashew nut. It can prove to be a boon to the State if horticulture is taken up or botanical garden is cultivated in Mahal region which gets 90" rains a year and where the land is fertile.

V-7. The Government of Gujarat and the Vaidyas of Gujarat keenly desire that with an eye on public welfare, an activity for reviving Shuddha Ayurveda may be taken up first in the State of Gujarat. After observing and studying Ayurvedic herbs in the region of Dangs, this Committee believes that a planned and long term scheme in this direction should be envisaged and should also be implemented accordingly. For this purpose, exploration, exhibition, store demonstration and gardens for medicinal plants and Pharmacy and Ayurvedic hospital, etc. should be established in the Dangs.

V-8. *Exploration.*—Even after deliberating so much upon the herbs of Dangs, a scheme seems indispensable for bringing to light all the herbs of Dangs, for getting them grown afresh every year, for assessing their sources and in how much quantity they are available, and for finding out on what places and under what circumstances they grow for knowing their actual uses as shown in Ayurveda and for examining how the people of Dangs avail of them and after a consideration of all these factors, for preparing a planned scheme and also for a small collection of all these. The Committee thinks that a good deal can be done up if, for this purpose, a Committee of Vaidyarajs skilled in herbs is appointed and one or two devoted workers are associated with the Committee.

V-9. *Exhibition.*

It is not enough that the knowledge gained by research conducted by the local committee remains only with the Committee or in the statements prepared by the Committee. All the herbs available through out the seasons in Dangs should be collected, arranged and preserved in the form of exhibition so that all the parts, sub-parts of these herbs can be always available for display in all forms at one place so as to give to the Adivasi populace and the outsiders an idea about the herbs growing in this part.

V-10. *Store.*—It is not enough if only this much arrangement is made or expenditure is incurred or say exploration is made or exhibition is held. As people

get acquainted with all these herbs and as they desire and put up demands arrangements should also be made to supply genuine and good quality herbs to Government, Private Pharmacies, to the Vaidyas, Traders, in or out of Gujarat. For this purpose, all types of herbs should be stored. The storage work and also the general responsibility connected therewith may be entrusted to the Committee referred to above or some better scheme may be devised in this regard. This is very important, because people of Dangs possess ample and adequate knowledge of the herbs and it is easy to acquire knowledge about all the types of herbs from them by giving them adequate labour charges or remuneration.

V-11. *Herbarium*.—Even after making arrangements for exhibition and storage, there should be herbarium established on a small scale for identification, development and study of all types of herbs. It will be very useful for observation and development purposes if an arrangement is made for planting most of the vegetations in a small place. For this purpose, land admeasuring 20 to 25 acres should be obtained at a well-equipped place.

V-12. *Garden of Medicinal Plants*.—On the lines of a uniform plantation of teak in Dangs, there should be a garden for medicinal plants. It is highly essential to obtain herbs on a wholesale and large scale basis and to plant them a new every year in order to preserve them for years. For this purpose, there is no other go, except establishing a garden of medicinal plants on such a large scale. Looking to excessive rains in the region of Dangs and also due to the fact that this region contains fertile portions such as Bardipada, Mahal, Kot, etc., most of the herbs useful to mankind, grow here. This place, is therefore, suitable as garden of medicinal plants and the committee is sure this place will catch the eyes of all during the coming five to seven years. For this, land admeasuring one thousand acres should be set apart at a suitable place. For this purpose, the Committee is of the opinion that such land should be either near Mahal or Bardipada on the bank of the river Purna or near Vaghai on the bank of the river Ambika. The jungles of Dangs produce Valuable teak. But there should be no hesitation on this ground in setting apart such land, because that area is capable of producing valuable herbs. If the teak and its production are necessary for the State, Shuddha Ayurveda and the activities towards the welfare of the State populace should, also not be under assessed. The production of medicinal plants in the land admeasuring one thousand acres can never be assessed in terms of Rupees. Even when thus compared the production of medicinal plants compares well with that of teak. This Committee is assured of the fact. In view of perspective planning this proposal is of the utmost importance. This garden will be such a model that even the foreigners will be tempted to avail of this scheme. In terms of Gandhiji's philosophy about Village Industries, innumerable Adivasis will be provided with adequate work and wages. Most of the produce will be purchased by Bombay being the nearest Industrial Centre and access will be had to the big market of Gujarat and Maharashtra. These goods will possibly be sold in Bombay or any other city from where Ayurvedic medicines on an All India basis are purchased.

V-13. *Pharmacy*.—Herbs in their natural form can be supplied to those that need them out of the stores in Dangs but all the Vaidyas, institutions or patients cannot transform these herbs into medicines. For that purpose, a pharmacy should be established on the lines of Adiar Pharmacy in Madras. Manu

facture of medicines should be undertaken on the very places where these herbs are abundantly available in Dangs and that process should also be well-planned. For this purpose, a sound scheme should be evolved by the Government or on a co-operative basis. For this, the Committee thinks Ahwa, the Head Quarters of Dangs, is a suitable place. Besides, Vaghai can be considered the next best centre equipped with overall facilities, because it is a Railway Station and has a river nearby. Moreover, there is also a Government Wood Factory and as such it can be considered suitable from all angles. Most of the drugs produced by this Pharmacy in Dangs will be purchased by Bombay being the nearest place. Maharashtra besides Gujarat will be another big market. These goods will be sold in Bombay, where Ayurvedic medicines are purchased on an All India basis. By putting the above Committee on a permanent basis this activity should be conducted at full Government cost under the control of the Committee and sense of devotion, integrity and purity should be watch words. Once decision for establishing the pharmacy is arrived, the details can be worked out subsequently.

V-14.—*Ayurvedic Dispensary*.—In the entire region of Dangs, there is only one Allopathic Hospital at Ahwa. Patients cannot avail of services of other private or Government doctors or Vaidyas. Besides, it is not fair that the people are totally deprived of the benefits of Ayurvedic medicines and treatment particularly when the places they reside are full of medicinal plants and when the people are accustomed to use of the Ayurvedic herbs and also where the local leaders demand such benefits. A hospital conducted on Shuddha Ayurveda System is, therefore, necessary in order to provide to the people of Dangs the additional facilities of treatment in Ahwa and also with a view to encourage the Ayurvedic movement. A small dispensary and a small hospital, therefore, should immediately be started with a scheme for future development. This Committee firmly believes that running of an Ayurvedic Hospital alongwith the activity mentioned above, is most urgent and inevitable. A European Divisional Forest Officer named "Samson" has 20 years ago, as a tribute to these peoples' love for these herbs and as an eye witness of the healing powers of these herbs, had got planted alongwith the plantation of teak, indigenous herbal medicines such as *Oroxylum indicum*, *Terminalia arjuna*, "कडायो"; *Myrobalaus*, *Terminalia belirica*, *Embellica officinalis* and *cassia fistula*.

Most of the herbs are found in valleys which are 40' to 50' deep. The parts of Mahal, Bardipada and Kalibel which we select as garden of medicinal plants has an average of 90" rains and on that count also that area is suitable. The principal population here is of Bhils, Kanbis, and vadis. All these three races are Black-White races. The population of Mavchi, Gamit, Kotwadia, Dholia and Naik is scanty. But they are sturdy people and can be depended upon. There were rich potentialities for their employment. The area of Bardipada and Kalibel is highly rich in bamboos. There is possibility of procuring "वांसकपुर" out of bamboos.

V-15. The Committee identifies Dangs with herbs and herbs with Dangs. Most of the places in this District bear the names of herbs such as Jamla, Lilpada, Biliya, Amba, Bijurvada, Bahedoon, Savarpada, Khajuri, Bordipada, Chinchpada, Kandhyavan, Timboorvan, Karadi, Ambu, Nimbpada, Mogra, Vadpada, Koylipada, Pilvai, Devi, Palaspar, Kakadvohar, Kherindra, Karanjpada, Kosimda, Kadamkhet, Chinchal, Chinchdhara, Sadadmahal, Borkhet, Umbarpada, Vadpada and pimpri.etc

V-16. When the State of Gujarat has undertaken the task of reviving Ayurveda and rejuvenating the people through Ayurveda, it becomes necessary to ensure that the workers are devoted persons and the arrangement is on a permanent footing. The Committee has witnessed during its tour that even the foreign pharmacies depute their representatives to Dangs to study the medicinal plants with the help of Dangis. They take away with them the herbs growing here and use them in their medicines. The Committee thinks that it is not proper if we do not place before our own people things that already belong to us. This Committee believes that it is an achievement of no small importance of the people of the region like that of Dangs who derive manifold benefits of Ayurveda for their health improves through Ayurveda, Hundreds of people get employment and service is rendered to Gujarat and also the nation. Cultivation of such gardens in Gujarat will be the best measure in the field of public welfare. This Committee recommends that a Primary Nursery be established at a suitable place equipped with adequate water facilities near Vaghai on the bank of the river Ambika. This Nursery should have one acre of land round about and a well with a pump and an engine should be built therein. In order to look after this engine and the pump, a tenement should be provided for the operator and alongwith this a small store should be provided. This building will be 410.45 sq. feet in area as indicated in the chart given in Appendix appended herewith, and the estimated cost of the building will be Rs. 8,200. The cost of the well, the engine and the pump is estimated to be Rs. 15,000. The nursery should be provided with a barbed wire fencing all around. Thus, the estimated cost of this Nursery, barring the cost of the land, will be Rs. 25,000.

CHAPTER - VI

GIR AND GIRNAR

General information about the Gir region.— The Gir area begins right from Dedkadi Village of Gir forest ten miles away from Junagadh. This forest is very old. It also covers the history even before Ashok. Ancient temples like Tulsi Shyam are reminiscences of the era Lord Krishna. These forests existed in those times and were replete with Ayurvedic herbs. Out of 500 herbs declared by Bhagavan Charak to be beneficial to human beings, nearly 300 are available here. The Committee has traced them and has also collected their specimens.

The hills here are not very high and are bare. But at their foot the areas are replete with invaluable and divine medicines. They are said to be replete with such medicinal plants because, in this area of 500 Sq. miles, more than six rivers flow *e. g.* Hiran, Matsyendri, Raval, Shingvado, Jatardi, Sarasvati and Madhumati. All these six rivers retain adequate waters even during summer and that is the reason why their banks are green with herbs.

Unlike other jungles, the soil of this forest is black, loamy as well as reddish. Also the lands on the banks of these rivers are alluvial lands and the soil adjoining the hills is rocky and black-stoned and at places it has lime-stones. Among all these hills, the highest one is that of Nandivela at about 2,000 feet. From this hill, an extremely useful medicine of Ayurved *Yiz.* Bitumen, can be had in considerable quantity. Another hill is Hajarmet. From this hill also, Bitumen, can be had. Mixed hills of antimony and lead are situated near Banej. This committee believes that the Government should make it a point to explore this site for minerals in proportionately big quantity are likely to be unearthed which would fetch good income. Round about Banej and Pataleshvar, *Ipomoea, paniculata, Dioscorea buebifera* “अवलबेल कंद” and *Rawolfia serpentina* are to be found in sufficient quantity. All these tubers are “रसायण, वाजीकर” as “विषघ्न” and “शोथहर”.

Among other useful trees are “कडायो, इन्द्रजव” *Bauhinia racemosa*, *Arjun Terminalia glabra*, *Sapindus trifolatus*, *Balanites roxburghil* oil of which is useful for healing wounds. “अंकोल, अनंतमूल, शिरीश” and *solanam indicum* and *Xantho carpum* etc. and their coupes from district existence. *Acacia catechu* trees found here are bigger than those found in the jungles of Dangs. Their barks contain more reddishness and this Committee, therefore, believes that in order to obtain catechu and catechuic acid in good proportion out of thousands of trees grown naturally, Government should prepare a special scheme because out of the jungle trees nearly five percent of the trees are a natural growth of this species.

Teak trees found here are of inferior quality when compared to those found in the jungles of Dangs. This Committee is, therefore, of the clear opinion that instead of teak plantations, plantations of herbs needing no watering should be planned on lines of teak plantations. These are *Randia dumetorum*, *Embellica Officialis*, *Terminalia Belerica*, *Cassia*, *Fistula* “अंकोल, इन्द्रजव,” *Acacia Catchu*, “कडायो” *Dalbergia latifolia*, *Gonolona arborea*, *Agle marmaloss*,

Adhatoda Vasika, Clerodendron Phlomoides, etc. Here on the banks of rivers, a number of trees of Engonia jumborana, Mimosa hexandra, Acacia Catechu, Tamarind, Adansonia digitata, Bassia latifolia, Anogeissus latifolia, etc. are grown throughout the year. If they are planted systematically, they are likely to grow more.

A medicinal plant known as “जलधावडी” very useful in the diseases pertaining to urine is seen on the banks of all of these six rivers. The water of these rivers is found to be tasteful, light in digestion and cool and sweet. The Committee, during its entire tour, has come across Nurseries run by forest Department at the following places. Ayurvedic Nurseries could as well be provided and the herbs should be grown or if this work is entrusted to the forest Department, something constructive can be done with the co-operation of both the agencies. The services of Ayurveda experts should be made available for officers of the Forest Department.

This committee has found the following places to be suitable, with water facilities for starting the Ayurvedic Nurseries with seed culture in the first instance:—

Nursery and Garden

1. Sasan.— Hiran river.
2. Kapooria.— This land admeasuring 60 to 70 acres is all flush land and is fertile and Ayurvedic herbs can be planted very well.
3. Shirvan.— This is on the bank of the river Saraswati.
4. Jamvali.— This is on the bank of the river Shingvada.
5. Mandvi.— This is on the bank of the river Machchhu.
6. Jassadhar.— This is on the bank of the river Raval.

On the bank of this river Raval, there is a land called Bhimchas admeasuring 500 acres. Fine plantations can be reared therein.

On the bank of the river Machchhu, near Mandvi Nes, there is suitable land admeasuring 200 acres for growth of vegetation. It is called Jankhi Nes. This place is three miles away from the Station. It consists of land admeasuring 100 acres. As the station is near, a store of medicinal herbs and a small pharmacy can be established here.

Kardapan.— Here on the bank of the river Machchhu, there is land admeasuring 200 acres. A Nursery can be located here.

- 2 *Dams.*— *Hiran Dam.*—There is a Government Nursery near this Dam. Land admeasuring 100 acres adjoining this the Nursery is high-level land. Medicinal herbs can be grown there in abundance.

Kamleshwar Dam.—Near this Dam, in the land below Sitamadhi, the water is available throughout the year and medicinal plants can be grown in ample proportions. This Committee, therefore, gives first preference to this place for establishing a Nursery.

Mandvi.—On the bank of the river Machchhu, there is land admeasuring about 100 acres. It is possible to cultivate gardens with the aid of irrigation from Bhudia canal in winter. After winter, water can be pump lifted.

Jasadhar.—In the place known as Bhimchas, there is level land admeasuring 500 acres. This land, where the Muslims who fled to Pakistan had been systematically cultivating, seems to be very useful for growing herbs. This place is first on the bank of the river Raval and water can be pump lifted. At present, a beautiful Nursery of the Forest Department, is to be found there.

The names of medicinal plants which can be grown in these places, in the first instance, have been mentioned by the Committee in the list appended herewith. In Khokhra Block in this Jungle Kadbi Grass grows. Paper can be manufactured from out of this.

2. Stocking medicinal plants.—

1. The medicinal plants, which grow by themselves in a natural course, in this jungle, are in greater abundance here in comparison to other jungles and there being no prohibitory law whatsoever, so many persons take them away. In order to collect all these plants it would be convenient to establish stocking centres at three places:—

1. **Junagadh.**—Medicines growing on the Girnar and round about can be collected.

2. **Sasan.**— From Rayadi Block, Sasan Block, Sandhbeda Block, Doodhala Block, Ambla Block, Barvania Block, Davaliya Block, Khokhra Block the following medicines can be collected *viz.* Embellica officianalis, Terminalia belerica, Cassia fistula, Cassia augustifolia, Randia dumetorum, “ हिंगोळिया, करंज ” Acacia Catechu Fumaria officianalis. “ कांटाकामाया ” Cissampelos Pareira. Agle marmaloss, Gmelina arborea roots, Indian Sarasparilla, Asparagus racemosus, Mucuna pruricns seeds, Caesalpinia, bonducella, Conessi bark, Wrightia antidysenterica bark, Bombax mulbericum, etc. and for all these land is available.

3. **Gir Gadhd.**—Population of this village is 7,000 and it is also a railway station. Also there grow many herbs and its is 80 miles away from Sasan.

In this part are situated Banej Block, Babaria Block, Chhovadi Block, Khodar Block, Satnesh Block, Kardapan Block, Vankajambu Block, and Jasadhar Block. From this region, the following herbs can be procured *viz.* Embellica myrobalans, Terminalia belerica, Helicteres isora, Cassia, fistula, Discorea bulbifosa, Cuscuta,

Hyalina, Ranwelfia serpentina roots, Batatas peniculata, Mucuna pruriens, Rohit Grass, "खडधामण, धामण, Bassia latifolia fruits, कडो घोडा आसन, etc.

The Committee is desirous of having a good Ayurvedic hospital in this region. Medicines useful in "रसायण," experiments and of quality, fresh and juicy are available in this region throughout the year. The Committee, after traversing the whole of the jungle, has noted the facility of procuring such materials. There is facility for preparing पलासामलकी रसायण useful in Kayakalpa. Trees of Butea fremdosa are to be found in this jungle. Before keeping patients on such "रसायण, arrangements for their diet are to be made. Mostly, such patients are kept on milk and "मठा, ". In this part milch cows of the Gir are fed on herbs and hence milk bearing all qualities, light and digestive is available. Also it easily turns into curds. We, therefore, see the necessity of a good hospital in such a suitable place in this region where patients can have easy access, and habitation and also where they can avail themselves of other facilities. Apart from this, रसायण प्रयोग like Asparagus racemosus, Batatas peniculata, Withania somnifera, "विडंग तांडुल" and sulphur experiments can be conducted here.

If a hospital containing all the five departments shown above is established, the public will be thankful to Government. 18 miles away from Shamlaji 100 years before near village Luchhadia, the Britishers with missionary spirit had established a hospital and Adivasis avail of it. This Committee, therefore, believes that if an Ayurvedic hospital is established in this area, it will prevent new diseases in this Adivasi Maldhari region and will enable them to be healthy.

In order to establish such a hospital, it is necessary that Government should acquire 50 acres of land at a place where there is a railway station and electricity supply like Gir Gadhdha. Such a hospital should be an embodiment of Charak's concept.

Research Centre

Over and above this, a research centre is specially required for conducting further research and acquainting with characteristics etc. of vegetations of this region such as roots, fruits, creepers, medicines, tubers etc. such a research centre should be attached to the hospital.

An ideal preservative of Indian herbs.— This Committee believes that the knowledge of trees imparted only on the basis of English and Commercial pattern and keeping only the economic aspect in view in the Forestry centres at Dehradun, Koimboor, Poona, Madras, etc. is totally inadequate and likely to hamper the national development. This Committee is, therefore, of the view that this forest region can be very useful and health giving and can earn considerable foreign exchange provided the students of forestry are imparted knowledge of medical herbs among major trees grown in rural, garden and forest areas along with the knowledge of coups, tubers, flowers, etc. growing under such major trees and also in the areas surrounding them. We may not commit ourselves to a long plan, even than we urge the Government of Gujarat that if it can manage to conduct a short term course of only two months duration and prepare the employees of Forest Department of Gujarat through the Auyurvedic experts in

herbs, Gujarat can avail of its immediate benefits and can serve as an example to other provinces and the Pharmacies and vaidyas can also get reliable drugs.

Jungadh.—During the course of touring the back side of the Girnar on the third day, the Committee found in this region alongside Tautania Dhuna near Boria and Bordevi, the coupes known as “संजीवनी बुटी” and “लक्ष्मणा बुटी”. Along with these plants, there grow “गोरख गांजा”. What identifies the “संजीवनी बुटी” is the fact that the leaves of this herbs are similar to those of guava, contain gum on their tops, bear white fruits, shine at night and at day-break and remain green throughout the year. Their fruits resemble poppy capsules but are comparatively small. Their flowers are small. There are so many coupes here. The local people resort to fumigation and use them to regain consciousness.

Swooning may be of any type but persons regain consciousness with fumigation of gum contained at the tops of these leaves. In this region are found vegetations such as myrobalans, Terminalia belerica, Agle, marmaloss, Phyllanthus, Embellica, Helicteres isora, Bitumen, Bamboos, Anacyclus pyrethum etc. The last one and Bamboo are more in abundance.

“संजीवनी”—This Committee, in order to get acquainted with the herbs, has availed in various ways of the villagers and admirers of herbs here. In this way the Committee gathered information at Gir Gadhdha regarding Laxman Booti “संजीवनी”. This was shown to the Committee by the Mahant of Bordevi who personally accompanied the Committee members. The sight of this herb on the rear portion of Girnar filled them with joy. These villagers avail of this to make unconscious persons regain consciousness by using its gum in fumigation. This Committee attaches great importance to the Research Department of these medicines. At the foot hills of the Girnar; the Committee had visited Shri Jaikrishna Vanashri Research Ashram. Also the sight of Dhanvantari Banyan tree near Bhanduri made the Committee feel that Government of Gujarat should revive this Gir forest with herbs as Sardarshri revived Somnath.

SUGGESTIONS OF THE COMMITTEE

Ideal hospital

1. A 30-bed ward for patients.
2. A full fledged ward for Panch-Karma.
3. रसायण ऋग्णालय
4. त्रिकुटी
5. सप्तकुटी
6. A garden of medicinal plants near Kankai.

Among the eight component parts of Ayurveda, the last three efficacious parts can be attended to with “रसायण प्रयोग”. These can remove diseases and oldage.

That means patients who are not cured in spite of great efforts in the Ayurvedic hospitals of Gujarat, can get admitted in this hospital and avail of the benefits of treatment for those particular types of diseases.

Increase in production.—The income out of this jungle is to the tune of Rs. 25 lakh a year. This committee believes that if, alongwith the teak plantation, herbs, coupes, creepers, etc. are planted, collected and sold, the production of this jungle can be five fold within ten years, because hundreds of useful herbs, though highly beneficial, are wasted only because their utility is not known. Thus, the national wealth is being wasted. This calls for attention.

Since Mahmad Begda conquered both Pavagadh and Juragadh, there was Muslim sovereignty over this region. Since three hundred years or so therefore this jungle has not been developed on Ayurvedic lines. Some arrangement must have been made by the Forest Department before three hundred years, as a result of which even to-day after three hundred year, more than three hundred herbs are seen green. This means that in the Gir forest no action whatsoever appears to have been taken since then for the plantation and preservation of herbs.

If this work is placed on a sound footing and work in respect of medicinal plants is undertaken, it will give a fillip to the Ayurvedic Pharmacy run at Junagadh by the Government of Gujarat and it will be an ideal thing and as all the three hundred herbs will be available from their own region; it will be economical and as these herbs will be pure, fresh and of quality they will enable as to manufacture standardised drugs and ultimately all this will bring credit to the State of Gujarat.

This Committee, therefore, recommends that a Nursery should also be established in this area on the lines recommended by this Committee for Primary Nursery, near Jashadhar on the bank of the river Ambika in Dangs.

Conclusion.—This Committee has personally witnessed many herbs belonging to "अनुपादिवर्ग, असनादिवर्ग, गुडच्यादिवर्ग, शतावर्यादिवर्ग, पटोलादिवर्ग, पिपल्यादिवर्ग, मूलकादिवर्ग, शामल्यादिवर्ग, कोकल्यादिवर्ग, आम्रदिवर्ग, चंदनादिवर्ग, etc. and the committee is of the opinion that the Gir forest is invaluable to Ayurveda. If Government develops it, its contribution in promoting health of the people of Gujarat, will be immense.

CHAPTER—VII

KUTCH

Kutch forms the mouth and the tongue on the map of India. In Ayurveda the earth has been divided into three parts, viz. (1) Forest region, (2) “अनुप” region and (3) Ordinary region. Kutch is the biggest forest herbal region in Gujarat. Kutch is a small, pretty, island coming out of the Arabian Sea and is replete with herbs. It is predominantly agricultural. It is situated on the west of India. On the north-east of Kutch there is a large desert adjoining Pakistan. On the East-south of Kutch there is a Little Rann. On the South and West, there is the gulf of Kutch and also the Arabian Sea. The Coastal line is covered with the herb named “चेरिया”. At Mundra port a natural creek which projects right from the ocean has become the biggest place for salt. Kutch extends from 22.46 to 24.16 latitude on the North and between 68.31 to 75.5 longitude on the East. Its total area is 16726.8 square miles. The length of land excluding the Rann is 170 miles East-West (its breadth is upto 15 to 52 miles North-South.)

On the latitude and longitude basis, it should have rains to the minimum of 20". But unfortunately the level of Rann is elevated and due to earthquake the Allah dam has turned into a hill, the waters of Sindhu river are blocked, and the situation has worsened, and the rain is irregular and scanty. At times there is excess of rains too. At present it gets barely 10" to 15" rain on average. If one year is normal the successive two years are of drought with the result the green foliage suffers. During the years preceding 1900, there is no trace of famine in Kutch, because in those times the Kutch used to abound in floral wealth and the river Sindhu formerly used to pass through Kutch; consequently there were thick jungles and quality rice used to grow there. This Committee, therefore, believes that if the river Sindhu flowing up stream in India is diverted a bit of its waters can be brought upto Kutch and this predominantly agricultural region can once again be green. The live stock is dwindling. Agriculturists and labourers are affected by poverty. But the vegetations keep the goats to be fresh and healthy. Trade and industry does not develop. India which is predominantly an agricultural country suffers as she has to rely on others for food

This Committee during its tour of Kutch has gathered a good deal of data as regards this region, its coastal line, its plant life, hills, minerals, forests and also its various Ayurvedic herbs in the natural form in jungles.

There are 10 cities and 964 villages in Kutch, with a population of 567607. About 11 lakh Kutchis are residing in areas away from Kutch or abroad. Kutch can boast of great personalities in the field of botany. This proves Kutch to be a place of Ayurvedic herbs. Cultivable land in Kutch admeasures 15 lakh acres. There are jungles distributed into minor compacts and blocks in 1 lakh and 20 thousand acres and the same are known as *Rakhals* in Kutch.

1. *Bhuj Taluka*.—(1) Kooti dam (2) Nandi baag (3) Kaak (4) Khasadi (5) Mochirai (6) Dantisar (7) Varar (8) Sumarsar (9) Village borders of Vandh (10) Bhoojiyo (one committee has selected *Rakhal* of this Bhoojiya. (11) Halo (12) Kans (13) Tambai River (14) Rudramata Plantation Valipai (15) Hamisar (16) Khai (17) Gurkar (18) Kirgirio (19) Nano Dholo (20) Moto Dholo (21) Saiyadpur (22) Chadva (23) Godsar (24) Changlara and (25) Village borders of Bhuj.

2. *Mandvi Taluka*.—(26) Vanothi (27) Sherdi (28) Nambhoi (29) Makdo (30) Thak.

3. *Mundra Taluka*.—(31) Gundala (32) Borana plantation and Bethak (33) Kuvo (34) Ganderi.

4. *Anjar Taluka*.—(35) Dedak (36) Lingal (37) Betiyun

5. *Bhachau Taluka*.—(38) Bhachau Gadhdhi (39) Bhachausan (40) Kandela.

6. *Rapar Taluka*.—(41) Badargadh (42) Selari (43) Pungbid

7. *Khadir Taluka*.—(44) Chhapario (34) Tagdi

8. *Nakhatrana Taluka*.—(46) Melo hill (47) Rajda (48) Vonar.

9. *Lakhpat Taluka*.—(49) Ghughaliana (50) Mindhiari (51) Kaniaro (52) Bone (53) Ratiar.

There are no big mountains in Kutch but some portion is hilly known as hill range and therein are some steep mountain like hills. They are all inaccessible. They are as under :—

The highest one is *Black Mount*. It is 1437' high. It's valley is full of herbs.

In the northern range of hills there are (1) Raimalari (2) Khadirvado or Khadio (3) Bhajdo Zikivadihar (4) Lakki Panchhamai (5) Ramthalvado or Panchhamai Dholo (6) Neelvo (7) Moani (8) Black Adhar which is upto Pachcham-Khadir -Pathal and Chachal.

Centrally situated hills range.—This is on the East-West from Zara to Vaghad of Lakhpat Taluka. The hills are as under :—

9. Jogika Bhit 10. Zaro 11. Firo 12. Karakas or Kanero 13. Dhinodhar 14. Varar 15. Zuro or Zuran 16. Gandhri 17. Habai 18. Bolari 19. Kasva.

This Committee has seen innumerable herbs of various types in the valleys of these hills. All these have been used in Ayurved. This Committee has also seen many herbs spread on the ground. On way from Anjar to Gandhidham, this Committee has seen *Casia Augustifolia* and also *glyeeriza glabra* near the Jain temple of Bhadreshwara.

Though these hills are small their land being highly fertile, their herbs when cut open are found to be extremely green and of superb quality. No superfluous trees grow on these hills, but useful trees like *Boswellia serrata* "रुखडो, बला, नागबला, solanum, Indicum grow. The Kutch region presenting a three fold picture of Nature-plant life, mountains and the sea-can be divided into two parts, from the view-point of herbal wealth—

(1) Sea—coast. 2. Stily region. The tribals residing here are familiar with most of the herbs.

औषधानामि रूपान्यां जानते ह्य नवा ।
अविवाश्यैव गोपाश्य ये चान्ये वनवासि तनः ॥

न नाम ज्ञान मात्रेण रूप मात्रेण वा पुनः ।
औषधिनां परां प्राप्तिं कश्चिद्वैयितुं मर्हति ।

योगविन्नाम रूपज्ञ स्तासां तत्त्वविदुच्यते ।
किं पुनर्यो विजानीयादोष धीः सर्वथाभिषक् ॥

योगमासां तु यो विद्यायेश कालोपपायितम् ।
पुरुषं पुरुषं वीक्ष स विज्ञेयोभिगु ॥

The above Stanza, propounding the opinion of Charak says that even the tribals know the herbs. This Committee, in keeping with the object mentioned by Charak, has come in contact with all the tribals and thus, had properly verified the herbs mentioned in the list appended hereto. This Committee was fortunate enough to procure the new herbs like Kailas-tree, Kamalapati-tree, "पर्वतराजी, मरुतो (शारवृक्ष)" and the Committee is proud of it.

Southern range.—It is divided into two to three parts and is centrally situated in Kutch region excluding the Rann. It includes the following hills. 20 Nanamo 21. Roha Mt. 22. Dhrabvo. 23. Kirgivio 24. Chadva Rakhal. (The committee admired this region for its vegetation) 25. Chadva hill 26. Lakki 27. Khatrod 28. Kurrikuboi 29. Rozvo 30. Dholo 31. Bhujio 32. Chitron 33. Jangario.

Plants can be grown in the Valleys of these hills.

Rivers.—The Committee has not come across any rivers full of water but during monsoon, these rivers are full of water. Due to hill ranges on the eastern and western sides, these rivers flow in two directions. The rivers flowing south ward and meeting the sea are called southern rivers and those flowing northward through the Rann and meeting the sea are called Northern rivers. The committee had not come across any river which is perennial.

Northern rivers.—1. Khari 2. Saran. 3. Zuranwali 4. Sajatawali. 5. Ghundud 6. Bhukti (Angia Vithon Dhinodhar wali) 7. Konwali. 8. Netawali. 9. Kadi, 10. Kapuravasiwali 11. Kidianagarwali.

The water of the northern rivers is sometimes sweet and at times brackish and when the river runs through salty land, its water also tastes salty, but

the waters of the southern-rivers is sweet in monsoon. However, it subsequently becomes slightly brackish. About 75 dams are constructed under Irrigation scheme in Kutch, by obstructing the currents of the swift-flowing rivers. More schemes are under progress. The biggest dam is Rudramata Dam.

Rudramata Dam.—The dam, situated at about 11 miles from Bhuj, is a reservoir with storage capacity of 2,20,000 lacs cubic feet of water. The Committee, therefore, is of the opinion that herbs should invariably be grown in the low-lying portion of the river, where the water can reach easily. Moreover, the area known as 'Banni' is situated in the low-lying portion of this dam. This area is quite level and fertile but is still uncultivated. It is, therefore, more suitable for gardens. About 10 dams in Kutch are so big that even in the time of drought they can store water for a period of two to three years. This committee thinks that if small gardens of medicinal plants are made in the low-lying portion of the dam at these places, sufficient water would be available even in the times of drought and the herbal wealth of Kutch could be preserved. Moreover, it is learnt that the government has planned construction of 100 Tube-wells, each with irrigation potential of 100 acres of land. This committee believes that if one acre of land at each such place is earmarked for planting herbs, the forest resources would be tremendously augmented.

Southern-Rivers.—1. Rukmavati. It has two minors one Khari and the other known as Bharodiwado Chheli. 2 Kharod. 3. Sai 4. Kankavati 5. Nayro (Vehar). 6. Raniyaro 7. (Mudra-Khariwali) Bhukhi its second minor is known as Kevdi. These rivers meet the gulf of Kutch and the Arabian Sea. This sea has been named Arabian Sea by the Moghuls. Formerly, it was not known as the Arabian Sea. This Committee believes that this sea should be known as Dhanavantari Sea because the Committee has seen the Dhanavantri Vad (Banyan Tree) also near Veraval. Moreover, Lord Dhanvantari appeared from the ocean with a pot of nectar, at the time of the churning of ocean. Taking this into consideration, a great image of Lord Dhanvantari should be raised near the Narayan Lake, where the ancient temple of Koteswar is situated and the committee humbly requests the Government of Gujarat, to re-name the sea as Dhanvantari Sea.

The rivers from other States also meet the Rann of Kutch. One such river is Banas, whose first minor goes into with the Big Rann and the other into the Little Rann. Such other River is Lunia which had two minors in the ancient times, out of which the current reaching Big Rann, turned its course and dried up. The other current falls in the little Rann. The third river—Saraswati, originating from Gujarat, touching Siddhapur, falls into the little Rann. The fourth River Roopen, originating from the hills of Kathiawar, comes to the creek near Zinzuwada and then falling into the Little Rann, it meets the Bay of Kutch. Various small and big dams totalling one hundred are constructed in Kutch, which can give a fillip to irrigation. The land around is waste land and therefore, the same affords a suitable atmosphere for afforestation and raising for gardens of medicinal plants and the herbal wealth can be augmented. Moreover, it is found that the above Rakhuls of Kutch are most suitable for growing more certain herbs. Along with its wide area, Kutch has different types of land appropriate for raising different sorts of herbs but there should be proper administration for full development.

Useful herbs viz. Balsmodedron mukul, Acacia catechu, Azadirachta indica Tuss, Ficus bengalensis Linn, Acacia Arabila willd, Ficus Religiosa, Capparis spinosa, Liar, Cordia Rothi, Gunda, Mimosa Hexandra Roxb, Artemisia Vulgaris, Guava, Citrus Decumara, Lemon, Mangifera Indica, Tamarindus Indica, Prosopis spieigera, Acacia Pennata, cocas mucifera, Phoenix dactylifera, "गंगी", Grewia villosa, (सीसोटी) Seesoti, Zizypho Jujuba, "चीकु" etc. are being destroyed as they are now used as fuel and coal etc. In absence of any proper arrangement for grazing for the storage and distribution of fodder, small but useful herbs destroyed and thus, the destruction of herbs has resulted in reduced rainfall, which has in turn, played its part in making the agriculturists debtors. The Government should, therefore, take necessary steps to stop this, otherwise Kutch will become a barren and arid land (region) in due course. The live-stock population in Kutch is as big as ten to eleven lacs. They also need adequate fodder. If grass is grown and stored systematically, it can save cattle in the days of famine and they can also flourish. If National Park for Herbal plants is located at Bhoojia, local people can get employment. Moreover, the land of Kutch is most suitable for the plantation of valuable herbs like Areca Catechu, Cocas mucifera, Anacardium Occidentale, Guava and pepper. Especially the plantation of Anacardium Occidentale (Cashew-nuts), near sea-shore, could fetch crores of rupees as the cashew-nuts grown there could be exported to foreign countries.

Trody herbs of the forest region are useful in many ways. The herbs that grow in the forest regions do not grow in the (अनुप) region. Hence, Balsmodedron mukul, (बला, नागबला, गुदार, गुगळ,) which are found here, are planted properly and profusely in Kutch, the whole Gujarat can benefit therefrom. Both the hills in Banni region can be used for this purpose. This committee has, after visiting the Kutch, Dangs and Gir region come to the conclusion that the forest Department should not cut down the precious herbs grown naturally in these forests, but should protect and preserve them in the same manner in which the Teak wood is protected and preserved. Officers of the Forest Department should, therefore, specially be imparted the knowledge regarding the Ayurvedic medicines in the classes to be conducted for one month during the year. If this is not done, whatever herbs exist today will be destroyed. The minerals used in the Ayurvedic (Therapy) like (घाण) (नेह) (धूप) and Alum are in abundance here and the committee has seen them in their tour.

What should be done in Kutch?— This committee feels that the Ayurvedic medicines can be grown better on the Bhujia Hill which is situated on the outskirts of Bhuj and is protected by a strong castle. Moreover, it is also felt that plantation-work can be conveniently undertaken as this region is within the jurisdiction of the Forest Department. Housing accommodation for workers can be arranged in the existing tenements. No other inconvenience is likely to be caused. Furthermore, there is also a small pond in this land admeasuring 583 acres. As boring is recently done, sufficient arrangement for water can be made even in the days of famine. Moreover, staff-members as well as the herbs grown inside can safely be protected, on account of the pacca well. The land, we felt, was good in as much as we saw many invaluable medicines like Balsmodedron mukul, (नागबला) etc. grown on it.

Due to hills inside a nice garden of medicinal plants can be reared there. The whole site, at present yields an income of Rs. 500 only.

Full scope for T. B. Hospital.—This committee feels that from Ayurvedic view-point from this region, can be a good site for starting sanatorium for the treatment of Tuberculosis. This region is totally dry and its climate cures coughing. It has large number of goats, feeding upon bitter, astringent and acrid vegetations. It is necessary to live in the midst of goats and to consume its milk, curd and ghee, so as to be cured of T. B. and hence a grand sanatorium for the treatment of Tuberculosis can be started here for this purpose. We approve the area surrounding the Narayan Lake and a place near the temple of Mata, or any place between Bhuj and Mundra. All medicines suitable for eleven types of Tuberculosis are available in this region. For Tuberculosis, Lord Charak has said that

“ यक्ष्यामये छागपयजिमासम्

छात्रघृतं छात्रनिवासवासम् ”

All this is easily available in the Kutch region.

A site for “Ras-shala” in Kutch.—In the eighteenth century, Riddhagarwala had made a name at Mandvi in Kutch. At that time, in his estate there was a beautiful temple of “Raseshwar” with the Baw made of mercury. Age has withered its glory. During our tour we have found many metals and sub-metals like Antimony, “गोदंती” Alum, Manganese, Iron, Mandur, “गेहू”, Lignite etc. and earth of various colours in sufficient quantities. Hence minor and secondary industry can flourish here. If a “Ras-shala” be started here, necessary herbs, minerals and sub-minerals in addition to the equipments required for manufacturing purpose would be available in sufficient quantity. For preparing “Bhasmas” fuel could be had from cow dung and wood of “बावल” and “बोरडी” which is in abundance here. Due to poverty and lack of industries, labour here is cheaper and easily available. A “Ras-shala” and a pharmacy, therefore, could well be established here.

Sharad Bag.—Vaidyaraj Shree Jaykrishna Indrajit got many Ayurvedic medicinal plants planted in this garden in the early years and added to its glory. The rare trees like Kailash tree, Rookhado, Saraca Indica, Putra-Jiva, etc. are seen here. A tree named Kamalapati was seen opposite the temple of Lord Shiv near Dayapur, on way to Narayan Lake, People worship this tree in the month of Shravan. Its importance is well known here.

This committee believes that a research should be made from the view-point of “Nighantu”, in respect of this tree.

The Sea Shore of Kutch.—We saw the temple of Koteshwar which dates back to the ancient times of Ramayan. Its “नांदी” is made out of five metals. We saw here a medicine known as “Parvat Rai”. It is a sovereign remedy for curing rheumatism. People here use it in pickles. We tasted its leaves which taste like Rai. This medicine also calls for research. Big and small morad leafy Vegetable grows here profusely on sea shore. People use it in cases of दातसेग

Shree Jaykrishnabhai Indrajeet, the late Botanist of Kutch, who was honoured throughout India, not only offered to Gujarat, his two works entitled 'Herbs of Barda Hill *alias* Botany of Barda hills' and 'Herbs of Kutch' make people familiar with the herbs and its utility and rendered yeoman's service. He also taught this Science to Shree Vaghajibhai K. Solanki, the member of the present committee who is now an ardent devotee of the same, who continued the work pioneered by him. Shree Solanki devotes all his time, which he manages to spare from his occupation to the research of herbs. He has made vast collection of herbs through his ardent efforts and silent and sincere work. He has also collected various seeds, the number of which amounts to thousands. We were highly impressed by his Herbarium as well as Museum and Research Institute and Shree Jaykrishna Medicinal Plants Research Institute, situated at the foot of Girnar at Junagadh.

Our visit to Kutch has removed our illusion regarding Kutch that it was a barren and dry region. This committee is of the opinion that much could be learnt about the herbs of Kutch even after the monsoon. One or the other herb of 115 species, out of 335 Natural Species falling under the Phanerogamus classification, is found in Kutch. More herbal species could be planted and reared, and further research could also be undertaken if planned effort in this respect is made at Government level.

About 65 to 70 % of the herbs mentioned in the books Nighantus and "Arya-bhishak", could be easily available to us for collection and preservation. Therefore, a special arrangement for the collection and preservation of the herbs of Kutch is imperative. Kutch could be transferred into a "नंदनवन", by preventing the waste of the herbal wealth as mentioned above and by extending and developing them. voluntary bodies and Vaidyas and persons who can travel and work hard in the jungles, are needed for this. The members of this committee are proud of the fact that they have travelled through Kutch, and wandered into the jungles, in the scorching heat of Mid-summer days.

The animal-world of Kutch includes cow, buffalos, Goat, Horse, Camel, Ass, Desert Ass, Rozs, Deer, Panther, Dog, Cat, Fox and Wolf, etc. As regard the minerals the following were to be found :—

Agate, gepsum, Mandoor, "मंडूर", copper, silver gold, casia augustifolia salt, Carbonate of soda, Alum, Red chalk, Earth of different colours like Red, Black, Green and yellow and "मगमाटी", Blue Sea-shells, chinese flint coloured stones of different varieties, louch-shells of different kinds at sea-shore, sea-shells and shells etc. It is said that a fish capable of producing real pearls is to be found in the sea of Kutch. We have procured one shell from which a pearl was previously out. It is, therefore, likely that, if research in respect of procuring these pearl-bearing shells is carried out in this sea, even thereby also income of crores of rupees can be made through pearl crush, pearl-dust, etc. The land of Kutch is also like that of Saurashtra, famous as the land of innumerable saints, donors, heroic persons, prophets and chaste and virtuous women. This Committee has the unique privilege to see the important places of pilgrimage like Bhadreswar, the monument erected in memory of Jesal-Toral, Narayan Lake, "मातानो मड", and Koteshwar Thus, in

multifarious ways, Kutch has been the source of inspiration. Much remains to be done in the field of Ayurveda in Kutch.

The late Shri Gokaldasbhai Khimji Bambadai, a popular social worker of Kutch, has rendered unique service to Gujarat by his excellent work entitled "वनस्पति सृष्टि" in Gujarati. During the course of tour in the Kutch area, the Committee was apprised of the fact that hospitals or dispensaries to suit the popular needs were being run either by Government or by voluntary bodies through popular donations. The Committee regrets to note that all these dispensaries are run on Allopathic lines. The Committee, therefore, request Government as well as the donor public of Kutch to see that the Ayurvedic aspect is not lost sight of and Ayurvedic system is preferred in new plans and schemes and that special attention of Government is invited to this aspect. It is reiterated that while planning, Ayurvedic hospitals equipped with beds—which are rare indeed should be created. This Committee will be ready to offer guidance and co-operation in all possible ways. In order to disseminate the knowledge of Ayurveda throughout the rural populace, we underline the special need of systematically providing Ayurvedic medicinal boxes in almost all villages through voluntary bodies like district panchayats. Side by side we also suggest that care should be taken to see that these medicinal boxes are provided regularly with fresh, good and pure herbs so that the desired goal can be achieved and with the help of planning of medicinal plants the people of Kutch will be assured of fresh and good medicines. During our four-day tour of Kutch, we have been lucky enough to see and learn a great deal. Though our tour was undertaken at the time when Kutch was drought affected, we came across many of the herbs and in addition to those, we have been able to visit places of pilgrimage, animals and birds, minerals, herbs growing on the sea coast lands conducive to all types of medicinal plants and big gardens. Also we have greeted a good many Ayurveda lovers and persons of repute.

From all these facts stated above, we come to the conclusion that for Ayurveda and for medicinal herbs Kutch is also a happy choice. Suggestions to this effect have already been made by us above. In the end we pray to God that the Ayurvedic medicinal plants growing in these forests, may multiply to the beneficial enjoyment of the people.

CHAPTER-VIII

DANTA AND JESOR

1. *General information regarding forests of Danta.*—Most of the medicinal plants of Ayurveda are to be seen among hills scaling upto 1000 to 1500 feet forming a part of external wing of the most ancient Aravalli hills. At present, these forests of Danta are spread over 80,000 acres of land. Its hills and lands are fallow and waste. Its lands are extremely fertile and rich due to various manures. This committee has seen new leaves sprouting on proliferous trees even during the midst of summer. This is how the hills are green. The Jamin-dari forest lands are comprised within 40,000 acres of land. These forests are nearly bare. The major and the biggest among these forests is Danta. Towards its east flows the river Sabarmati, towards its west, crossing the railway lines stands the hill of Jesor, towards its north lines the boundary of Rajasthan and towards its south, a part of Mehsana district.

The rivers like Saraswati, Umardashi, Kurmandi river of Balaram and the river Banas flow in this place. These rivers emanate right from here and are moderate in flow. The hills here remain quite green even during extreme summer. The hills here are about upto 1,500, 3000 to 3,500 feet high. They have many herbs. Soil in this region is sandy. From the viewpoint of Ayurveda, the forests of Danta are of the highest grade because they are a treasure house of innumerable trees of day-to-day utility in Ayurveda such as Embellie myrobalan, Terminalia belerica, Sapindus trifoliatus, Pinus longifolia, Catechu, Alangium Lamarecki, Anogeissus latifolia, Hollarhena anti-dysenterica, Agle marmaloss, Gmelina arborea, Withania somnifera, Anthrocephalus cadamb, Wrightia antidysenterica, Feronia elephantum, Butea frondosa, Ranwelfia Serpentina, Bombay mulbericum and Terminalia Arjuna. This Committee has been able to see Arjun trees here dating back upto 200 to 300 years. Hemidesmus Indicus has been found here in abundance. If an exploration is made of tuberous roots and medicines used as aphrodisiacs, they can be had in abundance here.

2. *General information regarding Jesor hills.*—This hill is as it were a younger brother of mount Abu and is also a part of the Arvalli hills range. The rear portion of this hill falls in Rajasthan but most of it is situated in Gujarat. This mountain is an abode for penance for Rishis, Munis and Saints and monks. Even at present, 15 to 20 Saints and monks reside here. On this hills, there are 2 to 3 temples. This entire hill is covered with various types of Ayurvedic herbs, while the foot of the Jesor hill is also replete with such vegetations. It is replete and covered with innumerable big as well as small trees consisting medicinal plants like black Anoge issus latifolia, Andarakh, Anthrocephalus cadamo, Pongamia Glabra, Vitex negundo, Prasari, “ नाग बला ” etc. This Committee has not seen any other place any where in the whole of Banaskantha which can stand comparison with Jesor in respect of medicinal plants. Clematis triloba grows here. Its leaves are like those of Salvadora oleoides. Though the leaves of Clematis are three fold, the leaves and fruits are sweet. From this its creeper is known by the name of “ Madhuras ” also. Its sweet leaves are also sticky.

Though Leaves of जीवन्ती (सीजरोटी) are similar to those of तरवड, the former are thicker than the latter. Its leaves are capable of being cut into pieces. Flowers of Tylophora are consumed as greens. Its leaves have uneven edges and are one-and-a-half-finger long. Milk oozes out of its stalks. Its fruits are thick as a finger and two-edged.

Creepers of Bryonia Laciniosa are found everywhere. Its leaves have uneven edges like those of Ricinus communis. Its fruits resemble fruits of jujube tree. These fruits turn red when ripe. Their seeds are black in colour and they induce vomiting.

Bryonia Scabrella is of the same type as Bryonia laciniosa. The only difference is that the fruits of Bryonia Scabrella are of the shape of conch-shell. There is a white line across the fruits of Bryonia laciniosa, which is absent on the fruits of Bryonia Scabrella. These fruits are bitter in taste and they cause motions. The Committee had heard of creepers of काकनासा growing in Dangs and Gir forests. These creepers, however, were not found in abundance. The 'creepers of काकनासा extend and spread over a distance. Its leaves resemble those of Ficus religiosa. Its flowers are internally whitish and externally bluish and have five petals. This creeper is bitter in taste. It bears two fruits on each stalk of the shape of a piercing lance. These fruits are three-edged. These fruits have a piercing edge like that of the nose of a crow and that is why it is named as 'काकनासा'. This creeper being extremely bitter in taste, it causes excessive vomits and affects bilious secretion. This is one of the big and severe medicinal plants. Its milk is applied on tumour which then subsides. Celosia argentea is consumed as a vegetable. Leaves of सरदेवी are small and rough. It bears small round fruits like those of जीपट. Its flowers are used in jaundice.

Mentha pulegium grows upto about three-fourth of a foot and is rare. Its leaves are as big and thick as those of holy basil. Its fruits are yellow and red in colours. These fruits cause watering of tongue in a way Anacyclus Pyrethrum does. By this virtue and characteristic of Mentha pulegium, some people some times also call it Anacyclus Pyrethrum.

The Committee has also found कडवी दोडी growing here. Its fruits have the shape of fists of hands and they are bitter in taste. It is called 'Vishmushti' in Sanskrit. The Committee has found these creepers in abundance in black soil. Its leaves are long like those of woodfordia flori Gunda. This creeper bears two fruits jointly growing on one stalk. Though its fruits are as big as flowers of Calotropis Procera, they are round in shape. Milk oozes out of it. The Committee has seen two types of black cotton:—(1) Black cotton (2) 'वेणी'. Seeds of black cotton are black in colour. Though its leaves are smaller than those of 'वेणी' they seem to be divided into three parts at the end. Its flowers are red in colour and cotton produced therefrom is of medium type. Though seeds of 'वेणी' are black, they are long and resemble plumes of hair of ladies. Its leaves are bigger than those of black cotton and they consist of five parts and show five edges. Its fruits are of yellow colour. Its cotton is good for lighting purposes. The Committee has found plants of 'Dev Kapas' in good quantity

3. *What can be done in these forest from the Ayurvedic point of views.*—The members of the Committee have come into contact with various persons during their tour and they consider the following schemes as would enhance the prestige of Gujarat :—

1. Government should start a factory on the land between Danta and Samrethas and Boswellia Serrata should be purified and quantity required for gum-plaster can be had on the lines of Punjab where terpine and बेरजो are extracted from pine and they have a bumper sale.

These trees grow here in abundance. Its latin name is Boswellia ,Serreta and it is known as 'Salar' or 'Gandhberjo' in Gujarati. It is useful in healing all types of abscess and it heals the wounds. Persons dealing in gum-plasters in India have earned lakhs of rupees though its use and at present also it has secured a good, market, it is said "With Application of Boswellia Serreta pain disappears".

2. Another factory to be started should be of काथो and खेरसार This Committee has found 'खेर' trees in abundance in the Borsal forests. These trees should be planted anew. This industry can be developed in a big way. Through this industry, demand for काथो and खेरमार which is very high can be easily met with. There should be a factory for that also.

3. In addition to this, Alangium Lamarckii and Balanites roxburghii trees grow here in abundance. If plantation of these trees is raised lakhs of trees can grow. The members of this Committee have found this land suitable, and conducive to the growth of these trees. Oil in large quantities can be extracted from Alangium Lamarckii and Balanites or burghii. If a factory is set up here, a useful and beneficial industry not developed so far can flourish. Oil of Balanites roxburghii heals and cures all types of wounds. It can be used in the times of war. If this oil is put to use in hospitals, this Committee feels that it can replace tincture iodine. Oil of Balanites roxburghii has been described by Kalidasa in his Shakuntala that Shakuntala had healed by this oil the wounds inflicted by Darbha Grass on the tongues of deers. If a factory of such oil is set-up here, it will be a service to humanity. This Committee is of the opinion that in the initial stages when this oil is prepared it will need publicity.

Recommendation for a stores near Balaram.—This Committee believes that if the place of the Nawab in the vicinity of Balaram, can be put to use a magnificent store collecting medicinal plants from all over Banaskantha can be set up here and an office for the said store can also be accommodated. For this purpose, if about ten local inhabitant, and a Vaidya and two assistants are engaged, most of the medicinal plants found in Banaskantha can be collected. The region of Balaram is full of natural resources and will have historical importance for Vaidyas as well as for medicinal plants.

Protected Forest Area. minor vegetational growth in these forests is found, in large amounts. this, however, being a navabi state, in pursuance of the laws in force in those times, such minor vegetational growth used are eaten up

by such animals like goats, sheep, camels, buffaloes, etc. This Committee feels that if such a wanton destruction is not checked hundreds of innumerable and match less herbs like *plungago capensis* चवक, *Glycyrrhiza Glabra*, ब्राह्मी, विष्णुकान्ता, अश्वगन्धा and *Hemidesmus Indicus* will perish. It is highly essential to stop this grazing and assistance can be had from forest Department. As a result of this, Ayurvedic coupes will be preserved which will serve the Pharmacy in future.

4. The Committee has recommended setting up of a factory in this part of Danta for the following purposes :—

1. Refinement and sale of *Boswelvia serreta*.
2. Preparation of खेरसार and कथो
3. Extraction of oil from *Alangium Lamarckii* and *Balanites roxburghii*.
4. As the forest contain *Butea monosperma* trees in large numbers the essence should be extracted therefrom and oil should also be extracted from seeds of *buteu frondosa*. This oil of *Butea frondosa* is in fact used in treatment of tape worms, round worms, hook worms and thread worms.
5. *Terminali Arjuna* is said to be Koramine of Ayurveda. Powder and ghee from *Terminalia Arjuna* can be prepared. The essence from the barks of *Terminalia Arjuna* can be extracted to be turned into tablets or capsules.
6. Raw materials should be got collected by the inhabitants of this place and one store should be set-up near Balaram.

Garasiyas, Kolis are the main communities in this region and if they are imparted training, their services can be availed of in many respects. If the scheme mentioned above is implemented, it will also tend to minimize unemployment in this region.

"Jungle of Kochri"

The jungle of Kochri is situated just at the foot of the stream of Balaram where the water is always 4 कोस deep. The members of the Committee have also seen a dam in the jungle of Kochri. Its name is Gangasagar dam. If the height of this dam is raised by 10' to 15', by acquiring adjoining land upto about 100 acres, a beautiful garden of Ayurvedic medicinal plants can be raised. About 300 to 400 Ayurvedic herbs can be made to grow therein.

"Arasur Hills"

Silicate of magnesia is found in these hills. This silicate of magnesia is made use of in coating medicinal pills, in polish, in leather tanning as well as in textile industry. This Committee has seen stones of silicate of magnesia. This committee believes that the Government should conduct a research in this connection and should further develop this site. *Terminalia belerica* which is considered to be most useful for coughs and for preparing many drugs grows here in abundance.

Balaram river which was named Kushmandi in the past flows out of Hathi-dara jungles and through Virampur estate and meets Banas. This region is best for Ayurveda. We have been informed that during autumn vital medicines such as Jeevak and Rooshabhak are found in this area. Vital means life-giving medicines that affect body, mind and soul are found here. The Committee, reiterates with full responsibility that this place is useful for herbs. These Jeevak and Rooshabhak Plants grow to a height of about three to four feet and we are informed that they grow in large numbers particularly during autumn. The climate of this region is extremely dry. Jujube trees grow in considerably good extent in the region. Fruits of these jujube trees are utilised in preparing starch. Lac of jujube trees is produced, which, if utilised as a means of birth control, can serve better in comparison to the foreign methods and techniques the use of which has been proved to be impractical and indecent. If this lac of jujube tree is used for birth control purposes there is nothing indecent about it. This lac of jujube trees is also useful in curing other diseases. One of the best uses of this lac of jujube trees is its oral administration as a result of which birth control is ensured for good. Besides, *Anthocephalus indicus* also grow here in abundance. Its flowers are also useful for birth control purposes. The Government should conduct a research in this regard, if feasible.

Gabbar and Arasur hills also call for thorough research. Particularly, *Aegle Marmelos* is abundant. It is specifically necessary to grow on these hills during monsoon, trees such as those of *Balsmodendron mukul*, *Acacia Catechu*, *Boswellia serrata*, कडीयो etc. Further, looking to the fact that many pilgrims from Marwar, Gujarat and Bombay come to the temples here, this Committee feels that a stall of these Ayurvedic medicines can be set up in the Government Pharmacy by Government and publicity be given to Ayurveda.

Jesor hill is considerably high. Many medicinal plants have been found in those jungles. At the foot this region is covered with big trees such as *Anogeiosus latifolia*, *Acacia Catechu*, *Pongamia Glabra*, *Butea frondosa*, and medicinal plants such as *cissampelos perreira*, *Ipomoea digitata*, *urgingea indica*, जयपाल and महाबला 10,000 Scions of jujube trees are planted in an extremely systematic way in the fields of Shri Joshibhai, the President of the Panchayat here. If the plantation of all these medicinal plants is organised on these lines, in a systematic manner, they can be grown here in a better way. The kinds of jujube trees are as under :—

- | | |
|---------------------|--------------------------|
| 1. Matun (Jalapump) | 5. Zizyphus Rotundifolia |
| 2. Jatrani | 6. Khareki (Ajmeri) |
| 3. Sahranpuri | 7. Rayan Bor |
| 4. Champeli | 8. Gir Bor |
| | 9. Surti (Randeri) |

A hill named Gajana is situate in the interior portion of Jesor from here. This hill of Gajana is a resort of saints, mendicants and Yogis. Many mendicants reside in these hills.

It is also heard that many efficacious medicines are lying in these hills. There is one such herb which sprouts from the land and extends itself in a height up to five to ten feet.

This Committee has seen a tree named Andarakh whose steamed leaves when applied on the stomach, remove abscess.

"Dantiwada Dam"

This dam is situated on the river Banas. The lower portion of this dam, from where a canal is constructed, will be humid after the canal starts functioning and as such if a botanical garden containing trees and medicinal plants congenial to the climate of Banaskantha is planned, this committee believes that high way travellers will get an impact of Ayurvedic culture. The buildings constructed in Dantiwada cost about 20 lakhs of rupees. This place is situated in the middle of the forest. This Committee hopes this centre may turn out to be a very important place for the Ayurvedic Missionaries throughout India. Ayurveda's main plants being continuity, herbs and philosophy, all these three elements are found existing in this place. The constructional aspect of the dam being over, if this building is availed of by the Government for a magnificent institution for Ayurvedic Missionaries, it can locate Post-Graduate Centre, Vegetational Research Centre, Ayurvedic Missionary Centre, Hospital, etc. A Missionary on the lines of Taxashila and Nalanda existing in the times of Dharmavanti can be set up here also.

Reports of Local People.—A Bhil, Harja Aepa, resident of Surajpara and other Bhils were called. They stated that they had been availing only of the herbs of Jesor since 70 years. Diseases pronounced to be almost incurable had also been cured by these medicines. They, during the course of discourse, disclosed that they can easily find in these hills medicines for all diseases. A medicine named प्रसारिणी is not so abundant in any other jungle ऋतुगुण, oil of "प्रसारिणी" has been highly extolled in BhavPrakash.

Conclusion.—Some of the Ayurvedic medicines are more in abundance in the forests of Gujarat in comparison to the whole of India. In Gujarat also the entire range of the Aravalli Hills extends through hills right from Sabarkantha to the central portion of Banaskantha. The Committee has found in these hills nearly 300 herbs useful to the humanity. The Committee recommends to the Government that if Ayurveda is developed in the forests of Danta as well as in the Jesor hills, it will serve the cause of Pharmacy and the people at large. These hills are so much fertile that this committee has found these trees extremely green even during the month of June. Prior to Moghul times these hills might have been having systematic plantations of Ayurvedic herbs and as a result of that these trees are found to be seen sprouting out of the residuary seeds. This is the condition of the Jagirdari forests. Like hair on the forehead, medicinal plants are rare indeed on the hills. This committee, therefore, recommends that medicinal plants may be raised in these forests anew.

Out of these forests, by remunerating the residents, if rare materials such as *Daedalacanthus Roseus*, *Acacia Catechu*, *Alangium Salvifolium*, *Vitex negundo*, *Boswellia serreta*, *Anogeissus latifolia*, etc. are collected and a store is set up and also if the same are sold on co-operative basis, the residents will be able to earn considerable income and the Ayurvedic Pharmacies will also be able to procure genuine raw materials.

This committee recommends two places in Banaskantha suitable for Primary Nurseries. One Primary Nursery can be set up near the Dantiwada dam and the other should be on the banks of the river Kushmandi just near Balaram. Both these Nurseries should be set up on the same lines as proposed in Dangs.

CHAPTER—IX

BHAVNAGAR, VICTORIA PARK

This committee had visited the Victoria Park prepared during the regime of Shri Takhtasinbji, the late Maharaja of Bhavnagar. This Park is adjacent to the extensive Gaurishankar Tank (Bor Tank).

This park is spread over 501 acres of land and has a wire-fencing all around. It is also protected by two large and beautiful portals. The entire park is inter-linked with good approach roads and there are other five to six residential quarters. We are given to understand that silk-industry used to flourish here. There is overall lighting arrangement in the Park as well as in the buildings. There is a mess and a section for children. There are four to five wells in the Park. There is in the middle of the Park a tank named "Krishna tank". There is a Nursery set up in the area of five acres and eucalyptus plantation is raised in the area of 25 acres. That Nursery contains a building and a garage and also a building for storage of seeds. This land in the Park is equally even and hilly; at certain places water gets collected and as such vegetations growing in water like cyperus rotundus, Nebumbium speciosum, etc. can be grown therein. The Park chiefly consists of trees of Morbi Acacia arabila and Acacia ferrunginea. On scrutiny this park was found to contain herbs as under :—

1. Azadirachta indica. 2. Gymnosporia montana. 3. नागबला 4. Asporagus Sarmmentosus. 5. Adhatoda Vasica 6. Croxylum Indicum 7. Tinospora Cordifolia. 8. Capparis Spinosa. 9. Sugandhivalo. 10. Arlu 11. Withania Somnifera. 12. Hygrophila Spinosa 13. Salanum Indicum 14. Euphorbia microphylla 15. Clitora ternata 16. Clitoria ternatea 17. Barleria prionotis 18. Helicteres Isora 19. Scilla. 20. Merremia emarginated 21. Acrua lanata. 22. Balanites Raxyburghii. 23. Sorghum Vulgare. 24. Cissanpelos Pereira. 25. Dadri. 26. Leucos Cephalotes. 27. Enicostemma Littorale. 28. Acyscarpus Longifolius, 29. Sahasramooli 30. Strychnos potatrum 31. Cuscuta reflexa. 32. Redalium murex. 33. Cassia tora. 34. Pongamia glabra. 35. Nerium odorum 36. Aloevera touin Ox linn. 37. Calotropis procera. 38. Doodhio Hemkand 39. Ocimum Pilosum 40. Glycyrrhira glabra 41. Tamarindus Indica 42. Laosonia Alba. 43. Roso. 44. Tectona Grandis. 45. Verononia cinerea 46. Achyranthes Aspera 47. Cassia pistula, etc.

This committee recommends to the Government that medicinal plants useful to humanity should be made to grow in forests, on river-banks, in canal divisions, on banks of reservoirs, in botanical gardens and parks and on hills and they should be fully preserved so that, by their proper use and application, various diseases of human beings can be cured and by their wholesome and pure use and application, purity of mind can be achieved and drain of wealth to foreign countries can be checked. There have been many skilled Vaidyas in Bhavnagar district. Nan Bhatt Bapa has also hailed from the village Gadhdha in Gohilwad district and he has also extensively propagated the use of these herbs. From

all these points, this committee believes that this victoria Park at Bhavnagar will turn out to be an ideal place in the whole of India.

Municipalities and village Panchayats that raise parks in their respective towns and villages, if take to planting on a more extensive scale trees and creepers as well as fruit-bearing trees useful for medicines, this will enable the people to identify these herbs and to learn of their utility and characteristics and such plantation of medicinal plants in this Victoria Park will serve as model to all other municipalities in a sense that villagers will be able to regain their health free of cost and Taluka Education Committees will be helpful to children in imparting knowledge of such home-made drugs by bringing them to such places on-excursions.

This committee recommends that the Victoria Park at Bhavnagar should be renamed as Dhanvantari Park or Punarvasu Park.

The Committee had received many suggestions during the discourse with His Highness the Maharaja Krishna Kumarsinhji in Bhavnagar and on the strength of those suggestions the Committee recommends that a pictorial Glossary entitled "Medicinal plants in Gujarat" should be published containing vivid coloured pictures of medicinal plants growing in Gujarat, alongwith their characteristics and their nomenclature.

CHAPTER—X

VANSDA—DHARAMPUR

The Committee for gardens of medicinal plants, after its tour of hills of the Dangs, Gir, Girnar, Kutch, Danta Jesor, Bhavnagar and Shihor, can state with confidence that most of the herbal medicinal plants referred to in Ayurveda are to be found in the forests of Gujarat.

The Committee is of the strong opinion that herbs growing during monsoon are in abundance. During rains in the month of August in the jungles of Vansda, what the committee has come across in the shape of plants upto two to three feet, creepers, various types of tubers thousands of big and small trees and vegetations bearing flowers of variegated colours, all in extensively green stage, eclipses what it has seen in summer.

The Committee, when it visited the jungle of Dangs, had no time to visit the jungle of Vansda to Dharampur, situated at the foot of the jungle of Dangs. In order that the medicinal plants growing during monsoon can be examined at leisure, the committee, had arranged a tour of the forest area of Vansda in the month of August.

The Committee had seen various types of tubers in the jungles of Vansda. The local tribals here are conversant with the names of most of these tubers. The Committee has found *Amorphophallous campanulatus* considerably abundant in this region. This species is mostly used in treatment of piles.

The Committee had come across many big and small herbs on the banks of the river Kaveri. It had also seen extremely attractive flowers of *Aconitum Napellus*.

In addition to the above, the Committee had during the course of its tour, seen the following :—

1. *EK Pan Kand*.—If it is orally administered to a woman for whom breast feeding is not possible, improvement is noticed in her condition. This was disclosed by the local tribals.

2. *Doodhio Kand*.—If the milk from this tuber touches the skin, boils appear on the whole body.

3. *Kadvo Kand*.—This tuber was found in the jungle near Tarkani. At present its creepers are upto 3 to 4 feet high. The local people say that during Diwali this tuber is bigger in volume. These people eat this tuber. In order to remove the bitterness of this tuber, it is cut into small pieces and they are kept for 6 to 12 hours in flowing water and thereafter they are boiled and eaten. These tribals had disclosed that this tuber grows in abundance in these times in

Dangs and during the times of drought when no other food is available, the tribals use this tuber as food. The Committee took note of this.

The members of the Committee had dug out 10 to 20 tubers and had obtained data to identify and assess their worth. The members saw in the fruits of *Acacia catechu* trees a rare substance to be found only in one tree, out of many.

The jungles here are neither too dense nor too sparse. The soil here is highly fertile and hence, trees, plants and tubers like *Piperchaba*, *Plumbago Zeylanica*, *Aegle Marmelos* and *Terminalia grandis* are in abundance. Such fertile soil is conducive to growth of vegetation.

Jungle of the Maharaja of Vansda.—This jungle spread over 500 acres of land is also situated in the jungle area of Vansda. This Committee is of the opinion that if tubers are grown in this jungle, their yield would be immense.

In respect of the jungles of Vansda and Selvas, this committee believes that a research can be conducted regarding the tubers used in Ayurveda. Also if the Government gets these tubers planted here, this Committee believes that the most useful raw materials for Pharmacy as well as treatment can be had from here.

This Committee honestly believes in respect of this region that the tubers growing here are so much in abundance that if the Government sets up a centre for storing them, an ample stock of Ayurvedic materials can be had from here.

These jungles can be divided into three categories :—

(1) Top Canopy jungles (2) Middle Canopy jungles (3) Ground cover jungles.

Out of the jungles of these three categories, ample material for research and storage is available. The members have toured all these areas.

1. *Top canopy jungles.*—In these jungles big and small trees have been abundantly found. They include Teak, *Curcuma longa*, *Acacia Catechu*, *Dalbergia Latifolia*, *Ptrocarpus Marsupium*, *stephegyne parvifolia*, *Madhuca Latifolia*, *Albri-zzia lebbek*, *Cucumis Sativus*, *Terminalia Bellerica*, *Aterocarpus Marsupium*, *Ficus bengalensis*, *Ficus Religiosa*, *Thespesia Populnea*, *Ficus Komerata*, *Gmetina Arboria* etc. *Bambusa Vulgaris* grow here to a considerable extent and if research in that regard is conducted here, *Bambusa Arundinacea* can also be had. *Triticum Vulgare*, growing in the upper portion of *Bambusa Vulgaris*, is used for curing certain diseases in Ayurveda. That *Triticum Vulgare* of *Bambusa Vulgaris* can be had in ample quantity from these jungles.

2. *Middle canopy jungles.*—*Holarrachena antidysenterica* has been found in abundance in these jungles. In addition to it, various other types of tubers are also found which include *Bauhinia Tamentosa*, *Diospyrous embryopteris*, *Butea frondosa*, *Zizyphs jujuba*, *Embelica officinalis*, *Coriandrum Sativum*, etc

3. *Ground cover jungles*.—This committee had found in this type of jungles, herbs such as *Anogeiosus latifolia*, "तरवड" *Helicteres isora*, *Cassia fistula*, *Aegle marmelos*, *Wrightia Tinetoria*, *Amorphophallous annuus*, etc.

The Committee has found plants and creepers in huge amount. They include *clematis triloba*, *Cuscuta reflexa*, *Tinospora Cordifolia*, "खटमला" "वसंतवेल" *Cissampelos pareira*, "कागडा", *Balsmoderon mukul*, *Momordica dioica*, *Petrocarpus Marsupium*, *Thespesia Populnea*, *Basvellia Serrata*, *Aegle Marmelos*, *Helicteres isora*, *Glewia asiatica*, *Mimusops Hexandra*, *Celastrus paniculata*, *Gymnosporia montana*, *Kakad*, *Azadirachta indica*, *Zizyphus Xylophyus*, *Zizyphus Rugosa*, *Zizyphus Rolundifolia*, *Buchananta hanzan*, *Semecarpus anacardium*, *Gmelina arborea*, *Khatlimbu*, *Crotalaria Juncea*, *Abrus precatorius*, *Butea Momosperma*, *Dalbergia Latifolia*, *Leptadenia Peticulata*, *Pongamia glabra*, *Cassia pistula*, *Cassia Auriculata*, *Tamarindus Indica*, *Bauhinia Tamentosa*, *Acacia Arbila*, *Yellow Acacia Arabila*, *Acacia Catechu*, *Albizia amara*, *Albizia lebbek*, *Terminalia Bellerica*, *Terminalia Arjuna*, *Anogeissus Latifolia*, *Eugenia Jambolana*, *Leucas Cephalotes*, *Stephegyne Parvifolia*, *Randia dumetocum*, *Morinda citrifolia*, *Mimusops elengi*, *Diospyros embryopteris*, *Holarchena antidysenterica*, *wrightia Tinetoria*, *Malrisa Arendrias*, *Hemidesmus Indicus* (*Hemidesmus Indicus*) *calotropis procera*, *Cordia Rothi*, *Sarcostemma brevistigma*, *Dalalatanthus Roseus*, *Croxyllum Indicum*, *Tectona Grandis*, *Vitex negundo* Vand, *Vando*, *Euphorbia antiquaria*, *Aterocarpus Marsupium*, *Blumea species*, *Tamarindus Indica*, *Ficus Religiosa*, *Ficus bengalensis*, *Ficus Religiosa*, *Ficus Komerata*, etc.

During Summer season in Kutch, trees of *Balsmodedron mukul* and नागबला full of flavour have been found. In this region, also during monsoon big and small plants as well as tubers have been found. We, during the course of our tour, have noticed here invaluable and innumerable plants, perishing for lack of use and the people who used to get cured with the help of such plants, at present, by imitating the literate people, suffer a lot while undergoing medical treatment in cities like Ahmedabad, Surat and Bombay. The Committee has seen the effectiveness of these plants on skin and abdominal diseases and it recommends that in order to achieve three fold preservation of these plants, our ancient culture and the public health in general, it is necessary for the Government to take requisite steps in this direction.

The Jungle of Selvas

This Committee was thrilled at the sight of the jungle of Selvas. The portuguese had not protected and preserved this jungle; they used to give an overall contract of these jungles. However, Gujarat has been lucky for the plants in abundance stand preserved in the jungles lying on the hills of these Sahyadri hills ranges. These hills are upto 1,000 to 1,200 feet high. People living at the foot of these hills, are conversant with these plants. The Committee had sought their assistance. In these jungles also, the Committee had come across the Kadvo kand of a small size and in raw form. The locals eat that tuber during famine. In order to remove its bitterness, it is cut into small pieces and put into the flowing water for about 6 to 12 hours and thereafter it is boiled and eaten. This was disclosed by the Tribals. The Government should, if found feasible

conduct research in this respect. This is not within the purview of this committee. *Asparagus sarmentosus* also grows here in large quantity. In addition to that the committee has seen many other tubers also during rains. In the jungles of these hills, if a research on creepers is conducted, various herbs like *Tinospora cordifolia* can be obtained. An extremely beautiful and decorative plant name "हरडाका ताड़", was also found. Plants of different species are to be seen in these streams.

Piles cure Hospital.—In Gujarat, thousands of people suffer from Piles. As many of them are chronic sufferers they become extremely unhappy. As the piles are never cured, the patient goes on getting operated and even then he is not free from this ailment.

We have seen *Amorphophallus* spp growing in the jungle of Vansda in huge quantity which is a very rare thing. And it is the best remedy for piles. Moreover, whey is also the main item of food in piles. As live-stock are found in good number in this region, a Piles curing centre should be set up at a suitable place in Vansda or Selvas, so that piles can be at once cured exclusively with the treatment of only *Amorphophallus* spp and whey. This Committee requests the Government to set up such a centre.

Nursery:—One centre should be started for the Ayurvedic medicines, found in the region of Vansda range extending from Vansda to Anaval or in Tadpada region. *Tectona grandis* plantation is also being raised here at present.

In this nursery can be grown those herbs which are found to be growing in abundance in this region. *Tubiflora acaulis*, षडकचूरो, *Hemidesmus Indicus*, *Cissampelos pereira*, *Cissampelos pareira*, *Desmodium Thuriferea*, *Asparagus adscendens*, *Curculigo Orchioidea*, *Hemidesmus Indicus*, *Celastrus Paniculata*, *Acacia*, *Catechu*, *Verononia Cinerea*, *Randia dumetorum*, *Funaria affinis*, *Terminalia Arjuna*, etc, are herbs that can be grown profusely in this soil. Here average, rain fall is between 85 to 90 inches, there is immense possibility for their growth. Medicinal plantation can be raised also on the banks of the river Kaveri flowing just adjoining to Shukleshwar Mahadev near Anavalnagar.

This committee is of the opinion that a research centre from Ayurvedic point of view can be set up in these Sahyadri Hills. The Committee had toured right upto Daman Post. From there on up to Tithal sea coast, nothing worth special merit, except "सरु", has been found, but the committee has felt that many of the tubers can probably be found in the hills surrounding Selvas.

The Committee had found in this region, farms owned by Koli and Anaval people. In these farms can be found creepers such as *piper longum* used in Ayurveda. In addition to that, *Artocarpus integrifolia*, *Achras sapota*, and *Mangifera Indica* are also found profusely. The monsoon is heavy here. The rainfall is between 85 to 90 inches and hence small and big plants grow in huge proportions all by themselves.

The portuguese have not done anything special during their regime to develop the jungles and hence thereby also the glory of medicinal plants has suffered a decline. In order to restore them their pristime glory knowledge of such-medicinal plants with emphasis on their merits should be imparted to children, students and the people with the help of Ayurvedic text-books, so that they imbibe this spirit. So many kinds of tubers are found lying in the jungles of Vansda, Dharampur—Selvas that each of them should be subjected to research and those who are well acquainted with these tubers should specially be encouraged, so that their knowledge can be availed of all the more.

This region would benefit if a Nursery is set up near Rakholi i. e. near-Damanganga. Moreover this Committee heartily recommends setting up of a store at Vansda for medicinal plants that may be available in the jungles of Vansda and Dharampur.

CHAPTER—XI

PAVAGADH AND CHHOTAUDEPUR

The Pavagadh hill is 25 miles to the South of Godhra, while from Baroda it lies 30 miles in North East. In the districts of Baroda and Panchmahals, this is the only hill which can have collection of a medicinal plants. This hill is 2811 feet high. It is 7 miles long North South and 4 miles broad East-West. Around this hill, there is a jungle replete with medicinal plants, admeasuring 25 Sq. miles. As the Gir forest is surrounding the Girnar in the same way there also exists a jungle at the forest of this hill. The area surrounding this hill has an average rain fall upto 30 to 40 inches.

Pavagadh is famous for its historical and religious importance but this Committee feels that its importance from the view point of medicinal plants is also immense. The hill looks like a "terrace" and its steep elavation is difficult.

Gujarat has been fortunate in the sense that Daman and Selvas regions, that form the frontage of the Sahyadri hills, are replete with medicinal plants, while the Sahyadri hills replete with medicinal plants at the altitude of 3,000 to 4000 feet situated on way from Sap-Utara in Dangs to Nasik, are also located in Gujarat. The part of the peak named "Don" is situated near "Saler Mooler" in Gujarat. The oldest Aravalli hill range in Gujarat lying from Khedbrahma towards Vijayanagar Posina is rich with numerous medicinal plants. Moreover, Bardo, the tail of the Girnar mount, is also rich with many medicinal plants. Thus, a very few States in India have jungles of medicinal plants comparable to those of Gujarat State.

The Committee was impressed during its tour from Pavagadh to Chhotaudepur and from Chhotaudepur to Amba Dungar, at the sight of the Vindhyaachal hill ranges.

Medicinal Plants to be found on Pavagadh.—Owing to the autumnal tour of this Committee all the herbs were found to be completely green. The Committee, while going towards Maachi, had seen many, medicinal plants useful for diversified treatments, such as Cassia fistula, Pongamia glabra, Cassia Saphora, Amorphophalus Species, Tectona grandis, Coriandrum Sativum Anthocephalus indicus, Kali Sariva, Mugda Parni, Mash Parni, Shali Parni, Tubiflora acaulis, Barleria Prionotis, Rawolfia Serpentina, Patrani, Aristolachia indica, etc. Throughout the whole jungle at different places, "सग" plants were blossoming gracefully. Just at the mouth of the river Vishvamitri plant which is known as Aristolachia in English and "Nakuli" and "Ishwarmool" in Sanskrit was found, it is to be found more particularly only in the jungle of Pavagadh.

This place being situated in the jungles various herbs, trees, etc. have grown well. There being no provision of water on Pavagadh, the Committee is not in a position to recommend any scheme. But it is certain that in this small sized hill, there is a beautiful collection of most of the medicinal plants refered to in Charak's दशमानी,

On this hill in the jungle at Machi at the altitude of 400 feet are seen medicinal plants, Such as, *Aterocarpus Marsupium*, *Morinda citrifolia*, *Halarchena antidysenterica*, *Anthocephalus indicus*, *Anogeisus Latifolia*, *Cassia fistula*, *Kakad Modad*, *Moi*, *Basvellia Serrata*, *Anona Squamosa*, *Mellotus*, *Alangium Salvifolium*, *Wrightia Tinetoria*, *Croton tiglium*, *Abrus Precatorius*, *Bryonia laciniola*, *Anogeiou latifolia*, *Justicia Procumbens*, etc. The upper portion is covered with groves. The Committee saw 7 kinds of *Eucalyptus* in the *Eucalyptus* plantations in Dhan Dhankuva Coupe No. 24. The Shivrajpur Research Botanical Garden is really model one and is worthy of study for the development of medicinal trees. Trees of *Eriobendron Anfractuosum* useful for Ayurvedic purposes have been brought here from Rajasthan and have been grown here. Besides, the plantation of—*Gnelina Arborea* used in *Daedalatanthus Roseus* has also been seen here. *Swertia Chirota* had been found here growing by itself. Moreover, *Daedalatanthus Roseus* and *Abysicarpus lognifolius* have also been found here. After visiting this Botanical Garden, we are of the impression that these plants can be grown side by side by the Forest Department. It would be expeditious if they are grown in the Forest Department nurseries because land acquisition and raising of medicinal plants independently would be time consuming. Only *Eriobendron Anfractuosum*, two years' old has been grown here and that also was 5 to 6 feet high and very green and juicy. This *Eriobendron Anfractuosum* is mostly been used in abdominal diseases, erysipelas and for blood purification.

Gelvat in Chhotaudepur is situated on the bank of the river Orsang. This place, similar to that of an Ashram of a saint has been found to provide same sort of mental or spiritual influence. A forestry school is being run here by the Forest Department. 30 students are being imparted forest training therein. Out of three pillars of Ayurveda quoted by Charak, one is of pharmacology. The area surrounding Chhotaudepur forest being covered with the Vindhya hill range, if an Ayurveda Vidyalaya is started for the students of this school of Forestry and experts in Ayurveda are prepared thereby, Ayurvedic knowledge can be imparted to the public at large. These students can be helpful to Pharmacy if they are given stipend, subject to the condition that they will serve the Pharmacy for a period of 5 to 10 years. This Committee recommends that two Primary Nurseries should be started in this area one near Chhotaudepur on the bank of Orsang river and the other on Pavagadh hill near the mouth of Vishvamitri River and both these should be on the lines of the Dangs nursery. A "तण्ड" tree used in "अश्रादिगण" was found on the Amba Dungar hill. This tree had three leaved branches. This tree resembled "सलय". similar to that of *Pinus longifolia*. These trees are found here in abundance. Gum oozes out of them, which is just like *Pinus longifolia* and it is widely used as incense.

Travelling further, trees of *Amogeissus Cattifalica* "काकड" "मोदर", *Dalbergia halifalica*, "शिरिष" and "मरडाशिगी" were seen. During this tour, "देवकपास" was found to be in abundance. These mountains are covered with small plants and various trees. The Committee has so far not seen a hill like Ambadungar,, which is almost thick with medicinal plants. A little farther from this place fluorite mineral is to be found. The Committee had gone near this place.

As the committee has observed, people of this area are strong, robust and hardworking. With minimum clothes on their bodies, these Saptar peopl

impressed the committee. Here many plants of small bamboos were seen ; and the valleys, were full of innumerable medicinal plants. Research on this site would take a lot of time. In monsoon, these people cultivate " मग " in their fields. They sow Jowar with Paddy. The crop of what is known as Santhichokha in Ayurveda, gets ready in 60 days, with less watering. Grangea Madras Patna and Phaseolus sublobatus, which are used in preparation of "जीवन", are available in large quantity. The committee could not find them in other forests.

The committee saw two types of Alysicarpus longifolius here. The grass of "रोजीसा" is also seen here, and its oil is used to cure Rheumatism.

The Committee had seen a big mountain from Amba dungar and its height was 3,000 feet approximately. These big and small ranges of Vindhya mountains, were full of trees, small plants and innumerable creepers. We were lucky enough to see the aweinspiring forests full of rivers, mountains, trees and creepers. People should benefit from the wealth of these forests, so that the foreign drugs can be dispensed with. In this forest, the committee had come across the Embilica and Terminalia trees.

Important recommendations of the committee.—When serpentine Narmda 80 feet in depth was seen by the members at the top of a hill 3000 feet high, with its banks and groves they concluded that the forest between Hanpheshwar and Surpan was worthy of study. The Narmada, flowing from 8000 feet high Amarkantak, comes to Mandavgadh near Indhore, via Jabalpur, which is 100. miles away from its mouth-Khandva (Mor-Taka) and Omkareshwar, and this whole bank is thick with trees of Terminalia chebula. In Ayurveda seven types of Terminalia chebula are described and most of them are available from this place. It has great importance from medical point of view. This bank of the Narmada near Surpan, is situated in Gujarat and the committee recommends that 3000 to 4000 feet high hills, situated near it, are the best places, where Terminalia can be planted in large quantities. By sowing seeds, or otherwise a big nursery should be established. The committee firmly believes, that if this plantation can be well planned in these hills Gujarat can produce Terminalia Chebula worth lacs of Rupees within ten to twelve years. After due consideration, the committee requests the Forest Department to undertake this project.

Leaving Kwant for Amba dungar, the committee saw Mohanvajepur, which was the old capital of Chhotaudepur. Besides this, there are many forests like Mithi Bor. Along kwant there flows the river called Eran. The Narmada passes through Gujarat in such way, that Vindhya mountains on its banks which are full of herbs, can be easily seen.

Kaliyo Kand

When the committee was going to Baroda from Chhotaudepur it met Shri Ochhavlal Chimanlal Shah, Secretary of District Panchayat at Jamboogam. He furnished Kaliyo Kand brought by Adivasis and he had planted three bulbs, of the same type in his compound which he showed there. He stated in writing that among Adivasis this bulb is known as Kaliyo Kand and in summer, when food scarcity prevails over the area, these people bring them, from hills and

boil them in earthen pots. By Boiling them twice or thrice in water, they separate the bitter intoxicating element. After cleaning bulbs, they keep them in flowing water and eat them. This bulb is available on the hill of Raipur. This bulb is available only on hills and its maximum weight is five pounds. Its creepers help us detect the same. They are available especially in their area and poor people use them as food.

When this statement was given to us, the following three officers were present :—

1. Shri Kantilal Purshottamdas Shah.
Vice-President, Jebugam Taluka Panchayat.
2. Shri Shantilal Chimanlal Shah.
Sarpanch, Jetpur Taluka Panchayat.
3. Shri Bhagvanbhai Gordhanbhai Patel.
President, Jebugam Taluka Panchayat.

This Kaliyo kand is not used in preparation of medicine, therefore, it is not in the purview of this committee, but as this information was given to us by some persons, we take note of it. It will be quite interesting, if the State Government arranges to collect more information about it. This committee is of the opinion that as Pavagadh is an old collection centre of herbs by acquiring fifty acres of land either at the mouth of the river Vishwamitri or near Manchi, a botanical garden can be planned one boring pump and other machineries can be installed there.

The committee recommends that fifteen to twenty acres of land may be acquired on the bank of river Orsang at Chhotaudepur and one medical store may be established.

CHAPTER—XII

SHETRANJAY AND GHELA-SOMNATH

Ghela-Somnath is a beautiful place. Behind Deri of Minaldevi which faces Ghela Somnath, the area is full of herbs. This area is situated near Gadhada. Shri Nanbhatt Bapa of Gadhada has enhanced the importance of herbs in Gujarat, because he was a staunch devotee of Shuddha Ayurveda. The Committee has collected information about ancient Vaidyas, wherever it went. These Vaidyas were residing in the forest, and stories of their love for herbs are also collected. Ayurveda has been nourished in Indian forest. In "Shakuntala" the curtain rises on the beautiful scenery of the forest. 'Kumarsambhav' opens with the scene of the mighty mountain Himalaya. The unique beauty of the forest, is reflected in the first canto of "Raghuvansha". If we look at Dilip and Sudakshina in the hermitage of Vasishtha, the forest Deity was singing songs of glory of king's dynasty, in tune with the sweet music created by breezes whistling through the cavity of bamboos and, on the path old Gopals were coming to welcome them with vessels full of ghee and both the king and queen were asking those old Gopals names of trees. This shows that our ancestors loved the trees. Even today there are such persons, who by bowing down to Vanaspati on previous day, uses its power after prostrating at its feet on the next day. In "Ramayana" Shri Ramchandrajii says that, "These trees and deer are my relatives". Tree is called Taru in Sanskrit, only because with its help, mankind crosses the ocean of unhappiness. It is written in "Rigveda" "Oh! medicine. Thou art the best. Other trees one smaller than you. Therefore, those that fall us, fall down." Further it is written medicines produced by Lord Bruhaspati which bear fruits and which do not, and those that bear flowers and those that do not, may free us from our afflictions".

The great Rishis and Vaidyas of our country have said that, we have to learn much from plants. They bear the heat and offer cool coverage to mankind. They teach us how to make others happy, even at the cost of one's own happiness; whereas selfish men try to be happy at the cost of others. This is what we learn from the plant life. If we want to prevent Bharat from becoming a waste land, plantation of these medicinal plants is a must. Oushadhi, i. e. medicine means, that which removes pain; it also means, that which contains fire within. No country other than Bharat has such a great Pharmacopia preserved in her literature. The committee has seen that, the inhabitants of the forests have to depend on these plants. Bhagwan Charak has also written :—

“औषधिनाम उपाभ्याम् जानतेही अज पावने :

अविपाश्र गोपाश्च अन्ये वनवासिन :”

which means, the people living in forests, like Gopalaks, Adivasis, Bhils and Shephards know better, because of their close contact with the plants. The Committee, when it saw the plant life in Shetranjay and the attachment of the people to it, felt that these herbs should be given wide publicity with pictures

and narration of their qualities and a missionary institution should be established, by Government which can devote its full time to it.

24 acres of land of Bhutadia farm, near the dam was examined for this purpose. It had 700 pomegranate trees, 60 achras-sapota trees, 700 guava trees, 60 sour lemon trees, 3 citron trees, 200 graft mango trees, 7 cocoanut trees, as well as trees of mosambique and orange. Jonesea asoka, and banyan trees and neem trees were to be seen in this farm. Shri Kaviraj Jorsinhbhai, offered to president of the committee for gardens or medicinal plants the farm which is property of Palitana Rachanatmak Samiti worth two lacs rupees on condition that the same will be managed in public interest and for turning it in a Shuddha Ayurvedic Medicines farm. He further volunteered to give two hundred cows and 20 good cows from out of the Panjrapole.

The above farm has got the facility of cananal water throughout the year. As the dam has a circumference of 42 miles, this farm can get water for the whole year and in future a beautiful botanical garden can be planned in which most useful Ayurvedic medicinal plants can be grown.

In this farm Italian lemons were seen; it is a species of citron. This committee has seen citrons of the best quality in Sonwadi, Santrampur, and Palanpur. In this area the committee saw lots of oranges on the trees. In this area, one species of orange is more sour than even lemon. Out of the several dams seen by the committee so far, this is the only dam which has the capacity to provide the maximum water for twelve months. One white Jambu tree was also seen; it is noticed in Mahuwa in Saurashtra. Here plants of solanum Indicum, "द्रोणपुष्पी", Veronomia cinerea etc. were seen in large quantity. This place is only six miles away from Palitana. Transport facilities for going to this farm are quite good.

The committee has seen the mountain of Somnath at Ghela Somnath. The forest of Ghela-Somnath is situated on the bank of the river Ghela on which dam has been built recently. This place bears historical importance also. The hill which has a circumference of 2 to 3 miles is situated behind the deri of Minaldevi, which is opposite the temple of Ghela-Somnath. The committee believes, that, the best centre for care of tuberculosis by Ayurvedic means can be established there.

Behind this hills, there is the confluence of three rivers; besides there are ravines and small hills at some height. On these hills are to be found the trees of Sapindus fourifolus, Acalia Arbica, Balsamodendron mubal and "समडी" as well as plants of "आवळ" are seen in large quantity. When the committee visited this place in October last Justicia Procubens was seen in large quantity. People supplied information about "मारवणी" which they use as brain tonic and which has the same effect as "शंखपुष्पी". This hill has level land on the top. There is enough place to build 50 to 100 huts and to keep 50 to 100 goats. These goats can be provided with sufficient grass, by providing a slope on the place. The river at this place is full of water throughout the whole year and the climate is dry. At the confluence of three rivers, on the banks, the farm of Justicia Picta can be raised by grafting. According to Ayurvedic system of medicine, Justicia Picta, milk of she-goat, whey ghee and dry climate are essential for curing Tuber-

culosis. The quiet atmosphere necessary for mental peace is available at this place. From this point of view the committee recommends establishment of Tuberculosis cure center on this spot. Eight miles away from this place, the forest near Hingolghadh and Bileshwar also requires to be surveyed.

In the Mantras of Rigveda, Atharvaveda and other vedas there are descriptions of plant life. In Atharvaveda the importance of plant life is emphasized often and often.

In Vedas, Vegetation like “पृष्नीपर्णी” “अपामार्ग” “कठ”. *Balsamodendron mubul*, “त्रिफला” are referred to as cure for certain diseases.

There is plenty of water in a well, but one uses it according to one's need; in the same way, the committee has tried to study those herbs described by Nighantoo, which are available in Gujarat.

A single object has different names according to its type, figure, colour and its power and effect. It is named differently by different persons under different circumstances.

The committee has stabilised these names, after seeing references in Prakrit and Sanskrit literature and after knowing popular connotation and after actual sight and feel of these herbs.

To get acquainted with these medicinal plants, the committee has studied Rajvallabh Nighantoo also. The committee thus studied the flora. The committee was fortunate in the sense that it could associate with different persons, and it used its discretion from an aesthetic point of view. A fully developed leaf, the delicacy of a stamen, dewdrops on trees, regular and systematic flowering of a plant and its multiplication-all this made the committee revere the lord all the more, and thereby they felt pleased.

CHAPTER-XIII

VIJAYNAGAR

1. After seeing the flora of forests of Gujarat, Kutch and Saurashtra, the committee came to forests of Sabarkantha spreading over 500 to 700 miles, and the oldest in the world, situated on the bank of Hiranya ganga and on mountains and of different colours at different places, creepers and herbs of Brahmi looked like green bedsheet. Moreover, after being impressed by the vastness of nature, and the green mountains, full of uniformly situated forests of wrightia-tinctoria, Aegle-narmelos pongamia glabra and vitex nagundo the committee travelled 130 miles. On entering into Idar, Ghano mountain covered with various herbs emerges into sight. Near the hunting ground also, many herbs are to be noticed. There are many other objects to be found. The four headed statue of Brahma, at a place where Lord Brahma initiated cultivation suggests that, the Creator of Ayurveda has full knowledge of all directions; and he has chosen Sabarkanth, which is a garden of medicinal plants. This Brahma has written a 'Samhita', containing one lakh Shlokas but it is not available to us. After leaving Khedbrahma and Lashimpura comes Chhilvad, where the Statue of Goddess Shitala is to be found in the most ancient temple. The committee gathered information about its history. On the bank of the Harnav, in this forest, an independent faculty for diseases of the type of small-pox, chicken-pox, and measles used to function. At present the river has deviated a little in its course. All the hills of Harnav Bandh are quite green. These hills are full of Aegle-narmelos of five and seven leaves, pongamia glabra, Sapindus Laurifolius, Balasmodendron mukul, Embilia, Nyctanthes Arbotrisis and Boswellia serrata. Even in the scorching summer this area remains green and cool, because the river Hiranya ganga runs through the whole forest, in a serpentine and at some places it looks dry for miles together but the underground water is ample. This is the peculiarity of this area. The committee feels that one another committee should be formed to study the herbs of the hills from Ganva to the Ashram of Amba Mahuda and from that place to Chitra-vichitra, where, two rivers the Akal and Vyakal meet; this area is known as Poshhi Na Patta and there flows the river Sheyi and on its banks grow various herbs. The forests of this area are full of Alsevera and Justicia Riccia which are used to cure infantile liver disease. Trees of Eriobondum Anfractuosa, with pods and flowers, which is used to purify blood, adds to the beauty of the forest. From this side, on way to Abu the forests of bamboos are seen. Behind the Ashram of Amba Mahuda, and on ascending the four thousand feet high Songadh mountain, we see the plane, when many plants of "मरडाशिली" are seen, among them many trees of Balasmodendron mukul add to the beauty. Near Ganva stands the tree of Elaeocarpus gaintrus with fruits. This is a historical place too. After visiting Sabarkantha the committee has come to the conclusion that in ancient times, the botanical gardens must have been well planned. The banks of Sheyi and Harnav, as well as, polo, Kalvan, and Dholvan confirm this impression. In these woods, the ruins of Shivalaya are also to be found. After the Muslim invasion in the tenth century, the knowledge accumulated through ages perished all of a sudden. Due to the oppression of foreign rules, we became slaves, due to the arrival of physicians from other countries our ancestors had to suffer a lot. Though Ayurvedic system of medicine was in the field in

our country, various other system of medicine had their sway in our country, with the result, that the knowledge of herbs was gradually on the wane; However the committee holds, that even today there exist some Adivasis who know them thoroughly. The necessity of reviving the study of medicinal plants, can hardly be over-emphasized. The committee examined many places, with a view to locate such a model garden.

Kalvan and Dholvan

The Committee has realised the great difference between the forest (वन) and the wood (अरण्य). In the forest, the committee has seen the trees of Nyctanthes, Jasmine, "चंपा" and the trees of cobeus swinging like earrings as well as beautiful dark purple coloured trees of Kesia Javanika, which are not to be found in a wood. In the wood, the tectona krandsis are planted in large quantity, but in Kalvan and Dholvan tectone Geandis are not seen but symmetrical trees of Aegle narmelts Terminalia Bellerica, Acacia Catechu Wrightia Tinctoria and Diosporous embroy-pterics were seen in great numbers. In this wood, there is a place of Bireshwar, which is a center of these herbas. Here, the committee saw the trees of genuine Terminalia Arjuna for the first time. These two forests have almost perished; it will be in the interest of Ayurveda, if they are still properly protected and grazing is not allowed. The committee especially recommends their total protection. Instead of using them for producing coal and far selling "टीबर्", these woods should be utilised for producing medicinal herbs which are of great importance to mankind and which save crores of rupees by way of foreign exchange. It can be inferred from what we have seen that even before Moghuls, there must have been rulers who might have planted medicinal herbs in a planned manner. The committee in particular is led to infer that during the Hindu regime, thousands of new trees were being planted. The committee thinks of 'Hindu' rulers because it has seen Hindu temples and shrines at many places. The committee has the mixed feelings of grief and joy, at the sight of this extensive area. Green trees with multicoloured fresh buds, green bamboos and bed of Brahmi of the forests of Rajasthan, Polo, and Vijaynagar were a source of delight to the committee. But the members of the comimttee, when they saw that most precious the most useful and two hundred years old trees like Acacia catechil, Gmelnia Arbarea and Terminalia Bellerica were being turned to fuel, they were immensely sad. Their deepest feelings were that, these forests should not be handed over to the contractors and Government should not care for such a few lakhs of rupees. Small booklets about these two forests with their medicinal plants as well as about Vireshwar, can be published. On the Vireshwar hills, there are some plants of Berberis aristata, which are used in the treatement of swelling.

The Forest of Polo

In the rear part of Ashram herbs like Aegle narmelos, Premna Imtergrifolia, Acacia Cateehu, "कांटी" and Basevallia serrata are to be found. Polo means passage. that is why, it is named so. There are many temples of Shiva and Shakti. Amid this area of Abhapur there flows Harnav. The facility of water and the quality of the earth of surrounding hills indicate that there are possibilities of growing vegetation of 'दशमूल', 'बसण', 'दिगण' and 'जीवनीयगण' type, if 200-300 acres of land

are acquired for a botanical garden. Moreover, a store can be established at Vijaynagar, where herbs may be collected in crude form. In this forest, the committee has come across plants belonging to the "जीवनीय गण" like *Randia danetorum* 'पीछो चित्तक', *Plumbago rosea*, *Plumbago Zeylanica*, *Veronica Cinerea*, Brahmi, *Terminalia Bellerica* (big), *Swertia Chirota*, *Zimostora Cordifolia*, *Vitis latifolia*, "मरडाशिरी", *Acacia Catechu*, *Eriobondron Anfractuosum*, *Cymboposon Seha enanthus*, *Sapindus laurifolius*, *Oraxylum Indicum*, *Balsmoderon mukul*, *Punarnava*, *Bhrungraj*, *Adropogon muricatus*, *Nimosa Pudica*, *Cypherus Ratundus*, *Vitexnagando*, *Berria Capensis*, *Wrightia Timiectoria*, *Banyan*, *Piper*, *Ficus Lomerata* "जंगली कांदो" etc. If a botanical garden is made near Polo, waters of the Harnav will be available and as by installation of motor-pumps horticulture can be resorted to.

After seeing this the committee had gone upto Panrava for seeing the forest of Rajsthan, so that, the herbs of Arvali can be examined. The committee saw the forest full of vegetation, when it crossed the dense forest of Sonaghati.

Panarva.—This forest is green and full of 300 to 400 herbs. Mountains are high and green, and amid them flows a stream of water. The committee realised, that Arvalli mountain is the only mountain in Gujarat, which is full of maximum amount of herbs, when it saw, various herbs like *Glycyrrhiza*, *Celastrus Paniculata*, "जंगली कांदो" Brahmi, "काळीजीरी" *Acacia catech* and *Balsmoderon mukul*. They saw the cave of Maharana Pratap, at the top of the mountain, where he had stayed in solitude for the cause of humanity. The Committee feels itself blessed at the sight. In Abhapur, the committee saw the tree of *Oraxylum Indicum* and its sword like long pods. On way back, in Vireshwar the Committee saw the supporting roots along with roots of the "केवड़ा" tree and genuine Arjun trees were noticed while entering the forest.

Vaghmaria Ghati.—While going from Dholvan to Bhakhre in the East, comes the region where the Kings of Vijaynagar gave a strong fight to the British Regiment of Kheda in 1828 A.D. and to Mahu Regiment in 1834 A.D., when a treaty was signed with the Britishers and the forests of this vast area were protected. Thus, the Maharaja of Vijaynagar too cherished the herbs. Near Antarsumbaa, there is a hermitage at Kaniyata, formerly known as Bhupatgad. There is an old temple, with a beautiful arch. According to ancient puranas and in Nadi-Puran of 'Kalyan' magazine, this was the hermitage of Valmiki Mooni. Script written on one of the stones of this temple, which were used as a support to the cement-concrete work of the dam on the Hiranya ganga, reveals that the temple was the hermitage of Valmiki Mooni. Bhrgu and Chyavan Rooshies of Ayurveda also resided near Bhavnath., Many herbs are to be found near Kalol and Derol, towards which these water flow.

It is recommended by the committee, that in this area, a primary nursery like that at Dang should be raised near Polo, on the bank of the Harnav, which is a cool area.

CHAPTER-XIV

OSAM AND BARDO -(KILESHWAR)

These are ancient places. So far as medicinal plants are concerned these places are of great importance like Gir and Girnar. Mountains and medicinal plants usually go together. Therefore, the committee invited persons well acquainted with them and adopted the following method of forest research.

2. *Procedure of the Committee.*—The committee invited the persons well acquainted with these herbs, from Patan Vav, Jam-Jodhpur, Upleta, Ghumli and Barada. First of all a rough account was obtained from them and in the Ratnashram of Trikamji of old Nighantoo, near Ghumli, the discussion on herbs was carried on. First of all, names of medicines besides those in Dhanvantari Nighantoo of 'Bhav-Prakash', were discussed. The committee had considered the names of drugs to be found in Raj Nighantoo of Madanpal and Nighantoo Ratnakar of Shodhal. Some years after Dhanvantari Nighantoo, Bhav Mishra, the son of Mishra Latak prepared a huge volume 'Bhav Prakash' after reading ancient books like Sushrut etc. in which the chapter on medicine was referred to by the committee. Its contents have an arrangement different from Nighantoo.

In this Nighantoo, the sequence is as under "त्रिफळा" then "त्रिकुट" "चतुष्कोण", then अंकोल, षट्कटु, अष्टकवर्ग, and "दशमूळ वर्ग". The Committee could find in the Barda region some herbs, over and above those mentioned in Nighantoo which are given in this book they are Sebani Grandifard, Opium, Cuscuta Reflex of Khorasa Saphidus Lauri fastius, Mimosa Pudisa lepidum Sativum, जिगोरिया, अखरो, अबुशीरथी, कमरख, भलासे, कसुंबो, करणीकर, पांडरेवो, करपाथी, काळीमुसळी, कांकणारी, कांचनी, कुबो, कुंभी, कुलीजन, कुवार, कोकसन्डी, कडी, खसखस, गंधमालती, चील्हकी, चग, काम्बल, चंद्रशूर, चौपवीनी, चुचुछुछ, जींगीनी, झेर, कोचला, टकोरी, वीन्डीश, तीनीश, तुणी, तीव्रतादीक, दूधेली, धावरो, नाकळीकणी, नागदमणी, नागपुष्टी, नागरवेल्य पाताळ, गरुडी, पारसपीपळो, पुत्रजीवक, पाल्त, बदाम, वांदो, बीयो, भांग्य, भोजपत्र, भंपायरी, मत्यक्षी, मरवाणा, मात्तीकामीन्डी, मूशली मंचीमोरशीया, मंडुकपरणी, लकमण, रतपत्री, आमवल्ली, स्वर्णवल्ली, etc. After Bhavprakash Raja Madanpal prepared Nighantoo called Madan-Vinod, which has also been referred to by the committee. Herbs not mentioned in Bhavprakash are, Anoclyus Puranthum, "अेलान, अंजीर, गागेर, परपोटी, पानीयामलक, फाग्य, विश्नुकान्ता, and हळदरवो, out of these, the committees could actually see 'हळदखो', 'विश्नुकान्ता', "अक्कलकरो" and "अंजीर" in the area.

3. Some years after Madanpal Nighantoo, Narhari Pandit the son of Ishvar-suri of Somanandacharya dynasty of Sahuaguha monastery of Kashmir, prepared a book called Abhidhan Chudamani or Raja Nighantoo. Its sequence is also different from other Nighantoo. It is the recommendation of the Committee that after finding out the equivalent Latin names and restoring natural order, we should revert to our original Nighantoo sequence. The Committee contacted many persons to see and study more such names, like अग्निदमणी, अद्यःपुष्पी,

अजान्ती, वृषगन्धा, अमृतस्रवा, कोयम्बा, कंटपुष्पी, कंधार, खाजवली, निकुंजका, नदीउम्बर, नदीवह, नरवृक्ष, नरवेल्य, माड, मोरटा, रतनज्योत, रुखडो, रुद्रजटा, अरिमेद, अग्निजार, उन्दिरमारी, कर्पूरमणि, कामवृद्धि, कालांजनी, काट्टीजीरी, कटुकवल्ली, झरस, झीपटो, झंडुक, तृणकसर, तरटी, तैरणी, दधिपुष्पी, नागदन्ती, निविषी, नीलवृक्ष, पाड कुदुम्बिनी, पलाशी, प्राची, मरकतपत्नी, पुत्रदायी, बस्तांती, ब्रह्मदंडी, भमरछाल्य भमरमारी, मार्कडी, रुदन्ती, वानरपीपली, वसुध्वेतरक्त, सुरशारबी, सोरंगी, हस्तिमद. After great efforts, some herbs were found. But it is recommended by the committee that a committee of experts on the subject of Adivasis and others should be formed to search these medicines, that are not available. After Raj Nighantoo, Rayakwal Brahmin Shodhal, the son of Nandan Vaidya of Vacchas Gotra, has written a book called 'Gun Sangrah' which is published under his name 'shodhal'. In order to teach his sons and disciples, he used to go to the forest with them and thus he found out medicines, mentioned in Dhanvantari Nighantoo and short references in Dhanvantari Nighantoo have been amplified in his book. As for example, "यासक द्वयं, i. e. घमासो, (Fagomia crelica) and जवासो, (Alhagi Psaudulpagi) are mentioned separately, instead of "Vyas" written in Dhanavantri Nighantoo. "Khadirou-Dwau" i. e. खेर and गोरड are mentioned separately instead of Khadir. In Sihore, many trees of Aceacia Temanginea were seen. "Dwi Nibou" i. e. Azadirada indica and melia azederach are mentioned separately. Trees of the same quality singly referred to in Dhanavantari Nighantoo are individually referred by shodhal. The process of finding out Sanskrit and Gujarati equivalent of medicines has started but due to the lapse of many years Gujarati names have become more remote from Sanskrit names, they, therefore are not easily available. The committee has seen some trees, the names of which are not available in Dhanvantari Nighantoo. Therefore names and qualities were found out by asking the people living in forests. The committee has tried its level best to find out the seventh class, included by Shodhal. In Shodhal Nighntoo the six classes are according to the classification of Dhanvantari and the seventh class called Lakhamanadi class is an addition. After getting information about new medicines written in it, the committee had tried to make search in that direction. In this area the committee could find medicines like, अमृतवेल्य, उत्कंटो, ऊंधाकुली, कागडोळी, कीडामारी, कोलकंद, खेरवेली, गरमर, and आगरमर, in fresh condition. Some medicines out of जालजांबू, देवगांधारी, नाराची, फ्रेनीला, मामेजवो, व्याघ्रपादी, are a few traced by the committee. After Shodhal, in Shalivahan Shak 1603, Vaidya Moreshwar, the son of Manikyabhatt of Ahmednagar, has written "Vaidyamruta". The name of Cathmijoa (cumin) is taken from Persian and written in Sanskrit. This cumin is found in Oonsa area. After that the great grand father of Vaidya Sohanji of Kashi, has written a great book called "Aantak Timir Bhaskar". He was taken the help of many books. In classification of medicine, he has included two names "अकचाह" and "अमर" The committee could not find these two herbs, even after great efforts; one of them is Nighantoo created by Shivadutt, in which forms, features and nature of medicinal plants are described. The committee has come to some decision after discussing the nature of these medicines. In Vikram Samvat 1935, Shaka 1890 and 1868 A.D. Vishnu Vasudeva Dakshini republished a book called "Nighantoo Ratnakar" with the help of Sheth Hansraj Karamshi, of Bombay. The committee has relied on this book also.

Thus the committee had found the area of Barada in search of these herbs. The trees of Bals-modedron mukul (Hook) when its branches are lopped, give out sweet smell. The soil called 'Bhutada' mentioned by Charak in दशेमानी is easily available here. The women carry the soil and use it as food. They drink the water drained of the soil after it is put into water the "सफेद चीमक" used as दीपन, medicine in Ayurveda is scattered over here. Moreover many herbs such as कांचनार आल, or रंगारी आमली, रायण, दुधीली, कडावो, इन्द्रजव, Wrightia tinea etoria (सफेद इन्द्रजव) Mimosa Puchica Linu Holopuba integrifolia, Macrura Arenaria, पाताळ गरुडी, मरडाशिगी, मालकांगणी, चरेली, पाठा, खडसलीयो, पीतपापडो, शरपंखो, माखनी, कांटाशिरिया, बावळ, रामबावळ, उत्कंडो, कखरुंदा, etc. were to be seen there. The committee thinks there might have been a dense, green and fertile forest in the near past because there are many tall and old trees of Minusops Hexandra on the hills. There in an ancient temple in Osham. The Committee had 'darshan' of Mahatmas residing in the temple of Tapakeshwar Mahadev, where water from the rock falls straight on 'Shivling'. This rock appears to be historical for there are four 'relics' of the Pandavas like the swing of Hedamba, the Bhimkunda, Bhimnath Mahadev, the dish of Bhim etc.

A suggestion of the committee.—The fair of the 'Osham Mata' is held at this holy place for three days on Shravan vad Amas and about 8 to 10 thousand pilgrims arrive here. The public can come to know of herbs on the mountain if it remains covered with the Ayurvedic herbs, at the time when so many pilgrims arrive. Thus many other small and big plants like Tectona Grandis, सवण, Acacia catechu, Euphorbia-nerifolia, Premna integrifolia Ficuskomerata, Terminalia Arjuna, Empica officinalis, करंज, etc., can be grown provided they are planted in monsoon. The foot-hill should be protected with fena as it is near the village. About two thousand live-stock of the village should not be allowed to graze there but grass should be allowed to grow in order to preserve the fertile soil of the mountain with herbs. The committee has seen small hills of Talaja and Ratanmahal in Gujarat. The committee felt that mountains like those of Dangs and Osham when compared with the above, are the wealth of Gujarat. We should preserve this wealth and enhance it.

The area under forests in Gujarat State is much less. The committee has come to know that only 6 percent of the land of the State is covered with forests.

We shall have to fully protect the plant life in order to multiply it. The committee has therefore felt that there should be special plantation of the Ayurvedic herbs in the forests of Gujarat, and its growth should be accelerated. The rampant soil erosion of the hills-region should be checked for it destroys the vegetation. The committee has felt after the excursion that it is necessary to protect the flora of our country with the same zest as we defend our country against external aggression.

The Barda hills

The committee has very closely inspected the Barda hills. This is a wide area where 'आवळ,' is growing abundantly. While going to Upaleta the committee

had seen 'avenues' of the Panchkshira trees. All the village folk can benefit from these trees if their knowledge is part of their education, for example children's diseases like 'Diphtheria' can be cured if a child is administered by mouth, at every half an hour small tablets made of Peepal leave Elepperia cardamonum and Catechu. These kshira-trees heal the wounds as well. Here there are so many Babul-trees, 'Paradia' fruits of which can be utilised for making tooth-powder. The committee had seen here and there trees of Sapindus Laurifolias and white solanum Laxmana when it visited Shapur. The trees of Sapindus Laurifolia which have high medicinal importance are growing in good quantity in Gir and its surroundings.

"कांटाळुमायुं," should be cultivated in the area of Girnar, Osam, Alech and Gop. The committee feels that Bosivellia Serrta can be grown easily on these hills. When we were ascending Osham we saw that the condition of two T. B. patients had improved because of the dry air there. There are many goats round about. On the way to the farm of Shri Mavjibhai Parbatbhai, we saw many plants of Tricholepis-amplexicaulis that used to turn Abhrak into Nischandri. The committee has seen for the first time the plants of Tricholepis amplexicaulis in this area. There is plenty of Merremia emarginata in this area. Glycyrrhiza Glabra as well as corissa carandas are in abundance at this place. However the committee has seen many groves of corissa corandas on the Girnar. And Lord Charak used it in the medicines that remove fatigue. Besides these capporis sciporia and क्यारो, are also found in good proportion in Gir and in Girnar.

While going to Jam-Jodhpur from Kolaki the committee has seen the hill of Alech on the left side of the road. There is a thicket near Satapur in Alech the herbs of this place should also be, examined. The trees of आमळा, and बहेडा, which were planted during the rule of old Gondal State were seen on both the sides of the road, between Kolaki and Jamjodhpur.

The green-yellow hill between Khageshri and Satapur is full of medicinal plants. The Kanmero-hill is on Barda, is famous for Parshuram Kunda. The bamboo of Barda is strong and heavy. The committee has specially seen the tallest hill of Barda and made study of the herbs grown at its foot. The area of Barda is 82 square miles, whereof the Rana Barda is almost desert except a few herbs. But there are rivers and various plants like Boswillia serrata in the Jam-Barda, The Rana-Barda, the जंजू, forest and the forest of Naliadhar are also a part of this area of 82 square miles. The forest of Jam-Barda and Rana-Barda overlap, while those of जंजू, and Naliadhar are distinct.

Looking to the limited quantum of the herbs in the jungles of Barda hills vis-a-vis increasing number of Maldharis and their cattle, the herbal growth dwindles increasingly day by day. The committee noticed the fact that the growth was thick in certain parts at the foot of the hills where the jungles were dense while it was sparse where the jungles were accessible and hence the growth of large trees is a must for the growth of vegetations, besides that the trees which are already existing at present should also not be felled. This area has an annual rain fall of 20 to 25 inches. While in Girnar it is upto about 40 inches and due to this fact also the herbs are different in type. The committee has found Barda to be green too. There are immense potentialities for new growth on

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these hills. Various types of herbs can also be grown here. The streams of water are isolated but there are many such streams. The committee had in particular seen the Khodiar stream. On its way to the Khodiyar stream, the committee had come across the following herbs :-

1. *Accacia Ferrunginea.*
2. *Maerua Arenaria.*
3. *Moringa Concanensis.*
4. *Bauhinia Purpurea.*
5. *Caesalpinia Pulcherrima.*
6. *Gymnosporia Montana.*
7. *Grewia Asiatica.*
8. *Balsmodendron mukul.*
9. मीठीजाळ,
10. *Coriandrum Sativum.*
11. *Flacourtia Quadrifida.*
12. जालजामनी,
13. वज्रवल्ली,
14. गोजीहवा,
15. *Bergia Odorata.*
16. *Hygrophilia spinosa.*
17. *Elantina Verticillata.*
18. कपुरीओ,
19. *Ixora Parviflora.*
20. *Acacia Catechu.*
21. *Diospyros embryopteris.*
22. *Gmelina Arborea.*
23. *Abrus Precatorius.*
24. *Luffa amara.*
25. *Acacia Arabica.*
26. *Mimosa Hexandra.*
27. *Loosonia Alba.*
28. *Stephegyne Parvifolia.*
29. *Capparis Spinosa.*
30. *Heliotropium isora.*

31. *Abutilon indicum*.
32. *Anogeissus latifolia*.
33. कारकडो,
34. *Zizyphus Juguba*.

While passing near the shepherds' huts at Badanes, Khataria etc. the committee had seen many trees of *Acacia tenanginea*, *Rubia Cordifolia*, *Embolica Officinalis*, *Pongamia globra*, *Terminalia Arjuna*, *Anthocephalus indicus*, *Mimusops Hexandra*, *Balsmodedron mukul* *Corisa Corandas*, *Zizyphus Juguba*.

The Barada hill has level land at certain places, while at other places there is hilly land. The committee saw in all about four to five hundred hills of the Barda Hill Range. It had seen the fort of Podpar just adjacent to the Kapooria Nes. The trees of *Balsmodedron mukul* can be grown on wide scale in all the parts of this area. Here the *Balsmodedron mukul* tree is very fragrant and on its trunk had silky appearance and was ash-coloured. It was for the first time that the committee saw *Balsmodedron mukul* in such a huge quantity. On that account this medicinal plant which is a sovereign remedy for rheumatism should be grown all the more. Looking to the quality of *Embolica officinalis* which is totally fibreless, and cures Diabetes and Leprosy, this drug--*Embolica officinalis* should widely be grown in the area. The land here is fertile. The committee also saw the jungle of strong and hard bamboos in the forest of Haradia. The hills in the front part of the Barda Hills seemed barren while those situated inside looked beautiful and dense with vegetation. The hills which were barren, dry and unattractive in view were situated near the Maldhari settlement. The committee therefore thought that the hill gets denuded because of them. While walking along the road the committee found the valley of the Gojari river very green and it saw many herbs inside. Most of them are referred to in this report. While on way they saw groves of कर्मदा trees that remove fatigue and bear flowers with sweet smell. The trees of Karkado, *Rubia Cordifolia*, and *Terminalia Arjuna* were to be seen here and there. The Committee thinks this Barda needs to be developed in Gujarat. About 15 to 20 Big and small rivers have their origin in the region of this hill. In order that there may be perennial flow in these rivers, this hilly region should be permanently green. It is due to the fore-sight of the ancient Rulers that the Barda-region has as many as ten small and big reservoirs, some of which seen by the committee are Gulab Sagar, Satsagar, Ranasagar and the khambhala Vank. Passing through the Bala and Ataria Nesada the committee arrived at the Kileswar hill where it saw its beautiful place, many building and wells round about. It saw the lake of Fulgar too. On entering the Kileswar the committee noticed many केसिया जवनिका, trees bearing pretty purple flowers. Next to Kileswar were found old mango, tamarind trees and Peepal trees. The trunks of these trees showed that the site might have been very ancient and was so established by the inscription on the temple where it is written that this place is about 4000 years old the extract of the inscription in English is given whereunder the temple of Kileswar Mahadev was built by the Pandawas four thousand years ago. Owing to constant and continued changes in the ruling dynasties of Kathiawad and specially those of the Kings of Ghumli. This place like all other ancient shrines in the province suffered from neglect and mohmedan depredations.

Owing however to the historical antiquity and sanctity of the place it was restored in 1913-14 A. D. Vikrama Samvat 1969-70 by his Highness Maharaja Dhiraj Jam Shri Ranjitsingji Bahadur under the direction of the State Engineer, Mr. Fulchand Dahyabhai Parekh. L. C. E. and the work was executed by contractor Vohra Mohmed Amiji Modi this denotes a strong land mark in the history of the province under the aegies of the British crown which has enabled a Rajput rulers to successfully restore a Shiv temple with the aid of a Vaishnav engineer and a Mohmedan contractor".

The region of Mahadev on all sides abounds in medicinal plants like Bambusa Vulgaris, Balsmodedron mukul, नागबला, Barchinia Tomentosa, Zizyphs Juguba, etc. The committee requests the Government to develop the land around Kileshwar as botanical garden, which would serve as a model.

The committee feels that this place can be converted into a beautiful garden with fine herbs and there can be a College for Post Graduate study in Botany and a Botany Research centre can also be established. The place of Kileshwar is unparalleled throughout Gujarat in view of diagnosis, dispensary and vegetation-the three pillars of Ayurveda according to Charak. A hundred acres of the land of Kileshwar, though its boundary stretches upto the gate should be acquired. And here research in herbs and their multiplication should gather momentum. Jam Shri Ranjitsingji has constructed at the cost of lakhs of rupees, the bungalow at Kileshwar and many buildings around specially for a change of air and for reception of the European guests. In 1947, after merger of old State Jam Shri Digvijaisinhji had assigned the bungalows to the Social Welfare Department to run Go-shala. All these buildings would provide accommodation for the staff. If the above mentioned institution springs up the children would turn out to be Rishes in the future.

The Kanmero hill is not far off from here. The committee has seen the Verlu Hill from this place. It abounds with plenty of vegetations which demand thorough research.

The committee had closely seen the hill of Abhapur along the road. There is a 'Jogi Pango' by the five-mile stone where flows water like Bitumen Judaicum and is never exhausted. It is heard that Bitumen Judaicum is available at several places there. The water flow which goes from the West towards the East is considered as sacred as the Ganges. The temple of Kileshwar Mahadev faces the West and the river nearby flows the east. It is named 'Kil-Ganga'. The committee has seen the herbs growing on the banks of that river.

CHAPTER - XV

RATANMAHAL, SANTARAMPUR AND DEVGADHBARIYA

The forest of Ratanmahal, the bank of the Panam river, the Saptakund Hill and a portion of the Mahi bank are even to-day abundant with medicinal plants, while the forest of Panchmahals which was so dense in olden times is almost denuded to-day. The committee has seen the bank of the river Chibota between Saut and Rampur. The bank of the Panam is rich with medicinal plants. The forests near Godhra and Tuva are not much dense now. The committee has seen a part of the bank of the river Meshari upto Sansoli.

The committee has learnt that there is scattered vegetation in the hills of Santrampur and Devgadhbariya. It has seen trees of *Bambusa Vulgaris*, *Acaria Catechu*, *Tectona grandis*, *Aegle Marmelos* in the forest where the Kadana dam was proposed to be constructed.

Medicinal Plants in the forest of Santrampur.—The sight of the hill of the ancient Hava Mahal of the King. One is led to presume that there might be dense medicinal plants on these hills. A palace down below is on the edge of the lake beyond which are found some medicinal plants of *Bambusa Vulgaris*, *Tectona Grandis* and *Daedalacanthus Roseus*. These hills are not too high. The committee had seen trees of *Morus indica* and *Morus alba* and also *Erythina ondica* that resembled the flowers of *Butea Frondosa* around the forest. *Norus indica* is used in *Leucorrhoea*. There were big *Citrys Decamora* trees, *Emblica officinalis* and others in the farm of Shri Biharilal Lallubhai Parikh. The committee had gone to Dezar Mahadev on the bank of the Panam river. The place is very antique and the water of the river tastes good. There is a fine forest of Nagoda in Bhatha.

A good number of *Buchananta Lanzas* trees are seen in the forests of Devgadhbariya. The highest summit in the Ratanmahal division is 2132 feet. There was a good demand for lac in old times, but it has dwindled. The valleys are very deep and the hill-slope is straight. The committee had gone to Lunavada to meet Shantilal Gopaldas Dave, a distinguished old राजवेद and had gathered some information.

Meeting the Maharaja.—The committee members met his Highness Maharaja Shri Jaidipsinhji of Devgadhbariya, who was happy to receive them. The committee had met Kakasaheb under instruction from His Highness, who gave an account of how he had cured many diseases with the help of the medicinal plants of this very forest.

Maharaja Sahab discussed some important issues on the subject.

His Highness remarked that Vaidyas should work with the zeal of a missionary. The importance of medicinal plants has wanted as synthetic medicines are on the increase. Every year forty thousand maunds of lac was exported outside the State but it is now reduced to only one thousand maunds. The

committee then wandered through hills, with a view to recognising medicinal plants.

The committee had gone to the Kadana Dam and found buildings of the P. W. D. (Colony)-lying vacant. It recommends that these houses should be used for storing medicines and a pharmacy should be established for preparing medicines from wood (काष्ठादि) etc. the forest of Ratanmahal needs to be expanded by planting lac trees. A lac centre and refinery centre should be established in Ratanmahal.

MEDICINAL PLANTS

- (1) नानी मोटी डणी,
- (2) घोळो आकडो
- (3) *elosia argentea*
- (4) वाजकंद,
- (5) *Tribulus terrestris*
- (6) *Plumbago Rosea*
- (7) *Tectona Grandis*
- (8) *Bambusa Vulgaris*
- (9) *Diospyrous embryopteris*
- (10) *Terminalia Arjuna*
- (11) *Modhuca Lotifolia*
- (12) *Terminalia belerica*
- (13) *Emblica Officinalis*
- (14) *Salmalia malaboricum*
- (15) *Balsmodedron mukul*
- (16) *Anogeissus lufifolia*
- (17) *Butea Frondosa*
- (18) *Morinda Citrifolia*
- (19) *Adhatoda Vasika*
- (20) *Jpomola poniculata*
- (21) *Cassia fistula*
- (22) घटबोर,
- (23) *Erythrina indica*
- (24) *Balanites Roxybusghil*
- (25) *Alangium Salvifolium*

- (26) *Helicteres isora*
- (27) *Aegle Marmelos*
- (28) *Anogeiosus latifolia*
- (29) *Wrightia Tinctoria*
- (30) मेर,
- (31) *Stephegyne Parvifolia*
- (31) *Capparis Sepioria*
- (33) *Pongamia Glabra*
- (34) *Celastrus Paniculata*
- (35) *Tamarix dioica*
- (36) *Albizzia lebbek*
- (37) *Gmelina Arborea*
- (38) *Bryonia lociniosa*
- (39) बांदो,
- (40) *Prosopis Spicigera*
- (41) *Desmostachya bipinnata*
- (42) *Lobelia nicotianaefolia*

The committee recommends that two nurseries on the lines of the Dang Nursery, one on the bank of the Mahi river at Kadana and the other on the bank of the Panam river at Kel should be established in this area.

CHAPTER—XVI

THE SATPUDA AND NARMADA REGIONS

The Satpuda region.—Many herbs are to be found in this region of so many hills. The committee has seen the bank of the river Karjan which originates from this hill. This bank is abundant with vegetation. Most of the hill is clayey, and the rocky portion is scanty. But the river Karjan passes through rocky area and has a pit 30' deep in the stream. The water is light and conducive to growth of medicinal plants. These hills are not at all barren.

The average rain-fall is upto 45'' or 50''. Maximum height is 3100 feet at Dhamanmal. Samod and Kanbodi are 2280' and 1535' high respectively, and the climate here is very healthy. The committee had passed through the Tunkaner creek and the forest of Kanajal. The forest of Kalvat is also full of medicinal plants..

The ditch of Tarav near Bogaj is surrounded by green land and its water is good. The region of Dedia Pada upto Ralada bears scanty vegetation, but the groves of *Bambusa vulgaris* are to be found throughout. The land from Ralada to Kanabodi is abundant with medicinal plants. The river Tapti is seen from the top of the hill — Govahoja that is adjacent to Kanabodi. Many tubers and medicinal plants grow here. From Kanbodi they came to Jogivaru hill (1600' high) which also stocks medicinal plants. Small herbs as well as trees are to be found in good quantity in the valleys at this place.

The forest area of the old palace of Rajpipla.—From the view point of medicinal plants the Satpuda region enjoys a unique position. This needs elucidation. We have not been able to exploit dense forests and the rich extensive groves economically for want of organized efforts. The fruits of *Embolia Officinalis*, *Terminalia Bellerica*, etc. are always lying on the ground and the committee has seen maunds and maunds of the flowers of *Butea frondosa* lying and perishing in the jungles.

As a result of different types of climate prevailing in various parts of our country, multifarious herbs belonging to almost all the species found on the earth are found to develop. Our ancestors had availed of them to a greater extent. The committee is led to presume at the sight of the various medicinal plants available even to-day, that the Aryans had deeply studied the plant life and had also classified them into different divisions or parts according to their medicinal and dietary characteristics. A ऋग comprised of only certain types of herbs. In this way, Charak has also exhaustively discussed about 400 to 500 vegetations alongwith their merits and demerits. Charak has even gone a step further and has beautifully classified them in 50 groups each consisting of 10 herbs. Similarly, Sushrut has described 37 ऋग and 760 species of herbs. Particular stress was laid on identification, medicinal worth and utility of a herb. Other writers have subsequently added their own contribution to it and have presented extensive literature about the Aryan medicinal plants. In this wide

and extensive literature references which can be useful even to the modern scientists have always and continuously been made as to from which places, in what season and in what condition should all these herbs be collected and preserved and also as to upto what extent the extracts from out of their different parts can be administered.

By virtue of the writings of Dhanvantari Nighantu, Bhavprakash Nighantu, Kaiydev Nighantu Madanpal Nighantu of Raja Madanpal, Narhari Sodhal, and other writers; the medicines were quite well known so much so that the foreigners also took to use our herbs. The Kings and people had ample faith in merits of our herbs. The Hava Mahel of Santrampur beautifully constructed at the peak in the centre of vegetational medicines stands intact even to-day and the committee specifically saw in the very midst of the jungles the old palace of this Ruler of Satpuda when the committee arrived there in company of Shri Ravjibhai, the Conservator of Forests. It is evident from this that the Kings used to keep medicinal experts and devotees of Ayurveda near to them and it appears from this old palace of Satpuda that in this way the glory of medicinal plants has been preserved very high till to-day.

Medicinal plants of this region

1. *Terminalia Chebula*.—Only about 50 trees of *Terminalia chebula* are now to be found in Samod. These trees are really healthy. The committee, therefore, specifically recommends that the Forest Department should take up planting new *Terminalia chebula* trees on these hills. This Samod hill is 2280 ft. high. *Terminalia chebula* called Abhaya which is quinquelinear, grows here.

2. *Terminalia Bellerica*.—This committee has come across the maximum number of trees of *Terminalia Bellerica* in this Satpuda region. The committee has also seen even 200 years old *Terminalia Bellerica* trees. Most of its fruits go waste in rivers. In the district of Vagadia opposite Gora, about 500 to 1000 maunds of *Terminalia Bellerica* are swept away in monsoon.

3. *Embellica Officinalis*.—They are somewhat smaller in size they have almost no fibres. The committee saw the last harvest in the month of March and they did not taste very much sour.

4. *Schrebera Swietenoides*.—The local people here call it मुह्यो, It is split up into two sides from the centre and when a child suffers from whooping cough, its one side is perforated and a thread is passed through it and is then tied up around the neck of the child. The committee has found its trees everywhere in the hilly regions in the State. It is more popularly known as रंजन and is also called बोदार.

5. गणेर.—This tree bears yellow flowers resembling those of *Salmalia malabaricum* and it also bears fruits. Its flowers are extremely attractive. It is also known as गीराणी.

6. *Erythrina Indica*.—Its wood is light in weight. It bears flowers resembling those of *Butea frondosa*. This tree is found almost everywhere in these hills. The committee has also seen this type of trees near Santrampur,

7. *Ipomoea Paniculata*.— This is somewhat round in shape and its maximum weight is 1 maund. Its minimum weight is between seven to eight lbs. This is found in ample quantities right from Limatvala upto Dediapada Ambavadi. This tuber is dehydrated by the local people at the time of paucity of food-grains during monsoon, and is powdered and turned into chapatis which are tasty.

8. बांसना घड़, — This wheat grows in clusters on the bamboo top when it is 30 to 40 years old. The local people sustain themselves only on this wheat during famine. When the wheat is ready the bamboo withers away. This wheat helps in curing diabetes. The committee has also seen the grains of this wheat and has also seen people eating chapatis made from it. All over the Satpuda hills, this wheat is found growing in isolated patches but abundantly.

9. *Luffaechinata*.— Some people call it खोजलवेलो also. Its thick creepers are noticed right from Limatwada upto Kanbodi and Samod. The committee has seen its thick root. This tuber is about 3 1/2ft. long. The local people here apply it to cure of erysipelas and other Skin diseases. The local people also use it as a drink. We add sugar to it but the Bhils drink it without sugar.

If this luffalchinata is split and dried up and rubbed on stone and then applied on boils and abscess, they burst and if the same rubbed piece of luffaechinata is applied time and again, the boils and abscess are heal up. In this way, it acts like poultice.

10. *Ipomoea paniculata*.— This tuber is oval in shape. It is found all over the Satpuda hills. Its long creepers climb up the trees. With the disappearance of hedges, the creepers have also suffered a decline. But here different kinds of trees serve the purpose of hedges. This tuber is much more soft and juice like milk oozes out from it, hence it is called क्षीर विदारी. The Bhils dry up its bark and turn it into flour and prepare chapatis. It bears sweet fruits. It was found to be of white colour when cut into pieces.

11. *Tacca aspera*.— This is also known as हुवरा, *Dioscorea Bulbifera* by the local people here. This tuber is covered with hair like fibres. These tubers are conical in shape. The local people bake them for eating.

12. *Asparagus Sarmmentosus*.— It is in abundance all over the Satpuda division. The local people here call it ससला चारो,

13. कंकोढानो कंद, — The local people rub it against stone and apply it on ulcers.

14. वाज कंद, — This tuber is poisonous. It is sweet in taste but is extremely poisonous. But even then the Bhils boil it and throw away its water. After this is done several times, it loses its poisonous character and then it is eaten up. This was disclosed to the committee by the local Bhils. This should be investigated. This tuber is also covered with thin hair-like fibers.

15. मीठो कंद, — This tuber is sweet. It is boiled and eaten up. It is not poisonous. This tuber is found all over the region. This tuber is covered with small dots and bears in the middle a pimple-like high mark similar to that of a ripe small pox grain. This tuber is borne on creepers.

16. कळियो कंद, — This tuber is found growing all over the area. Its maximum weight is five lbs. and minimum weight is five to six tolas. This whole tuber is covered with hair-like fibres. As this tuber has received publicity it was extracted from the ground at this place also by Madhavsinhbhai with the help of the local Tribals. The committee had seen the same. On inquiry of the local Tribals about its use it was found that during famine as well as during summer, it is used as food after removing its bitter taste by boiling and keeping in water. Once it is eaten hunger is not felt for three to four days. This was stated by the local Tribals. The Government should conduct research if deemed fit. The committee has no knowledge of its constituting units.

17. *Vitis Latifolia*.— *Vitis Latifolia*, thick like a fist or even thicker than that, grows in this region. When local people are thirsty and they donot get water in the jungle to quench their thirst, they cut this *Vitis Latifolia* and sip water dripping out from it. Persons named Ughranio and Gami had cut this creeper, blown wind from its end and got a cupful of water at the other end which they drank.

18. *Cassia fistula*.— This grows in abundance in this region. All over the region it is plentiful.

19. *Round Tectona grandis*.— This is a tree. The local people grind its bark and administer it orally to the patients suffering from diarrhoea, Dysentery, Cholera, etc. It produces salutary effects. The committee has found this in abundance in Baba Doti Block.

20. *Eriobendron Anfractuosum*.— The trees are huge in appearance. The local people use it to cure blood-disorder. If blood has clotted up, and if this is used as a plaster the blood begins to circulate.

21. *Terminalia Arjuna* (white and red).— White *Terminalia Arjuna* is called अर्जुन सादड. To cure blood-disorder, the local people boil its bark and drink it. They also soak it into water and then drink the liquid.

22. *Cheelun*.— This is a tuber and it is long in shape. It possesses hair-like fibers. If a person suffers from abdominal pain, milk is squeezed out of it and is applied on the stomach. The spot where this milk is applied, gets swollen and simultaneously the pain disappears. If a person suffers from acute and chronic constipation it is boiled and then is applied as a poultice on the stomach and the bowel troubles subside. If its milk touches the skin, the skin has blisters.

23. *Helicteres Isora*.— This grows here in huge quantities. When someone suffers from diarrhoea the local people crush it in water and administer it orally.

24. साचराना मूळ, — This grows into a creeper. Its roots are crushed and applied with a bandage on the broken bone, and the fracture is restored.

25. *Naag Maati*.—This is a particular type of soil which is found within the range of five miles surrounding Limatwada. The people here use it as a plaster for setting broken bones. This soil is somewhat heavy. According to Madhavsinhbhai this soil is rich in Iron Oxide. He had made this statement after getting this soil unofficially tested in a laboratory. This soil is also very useful for colour chemicals. It has good bonding capacity.

26. *Balanites Raxy burghii*.—Its trees are scattered all over the Satpuda hills. It is used for washing clothes.

27. *Sapindus Laurifolius*.—This grows in the Vankal range. *Acacia concima* is also to be seen.

28. *Ichnocarpus frutescens*.—This plant bears leaves resembling *Ling Iber Officinalae*. This grows abundantly in jungles. The local people sip its juice as it cures abdominal pains. When they suffer from headache, this is rubbed on the stone and then is applied on the head. It also helps in migraine cases. Dry ginger should be made out of it.

29. *Capparis Zeylanica*.—This is a tuber and grows in small quantity. When an animal suffers from wounds and the wounds are full of insects, this tuber is powdered and is sprayed over it which kills the insects.

30. हेंडाओरा, — Swelling over body is cured when this is crushed and applied.

31. *Holarchena antidysenterica*.—These trees grow in a very large number. Bitter and sweet both types are seen by the Committee.

32. चीलारी, — This grows in the form of creepers and its barks are used for tanning leather.

33. *Zizyphus Xylopyrus*.—The fruit of this tree is used in colouring leather.

34. *Icomoca Reptaus*.—It is used as food in the form of पातरा.

35. *Basvellia Serrata*.—Its trees are large and it oozes out gum in good quantity. It is used for sizing purposes in textile mills.

36. *Anogeiosus Latifolia*.—Its fruits are similar to those of *Pedaliu murex* and it is used for fermentation; when it is not available, flowers of *Madhuca Latifolia* are used as substitute which also cause fermentation. Its wood is so strong that it is used as an axle.

37. *Croton tiglium*.—The people here use the roots of *Jatsopha cureas* in large quantity.

38. *Plumbago Zeylanica*.—This grows in good quantity. Only two types one white *i. e.*, *Plumbago Zeylanica* and other red *i. e.*, *Plumbago Rosea* are to be found here. A piece of *Plumbago Zeylanica* weighing upto about two lbs. was excavated and seen by the committee. It used to give rise to blisters when applied on the skin.

39. *Lagenaria Vulgaris*.—This grows in form of creepers. It has the shape of a pumpkin.

40. गुलमावो, — This grows in small plants. If a person suffers from pain in the chest, it is crushed and administered with water orally. The burning sensation in the chest also disappears.

41. *Bombax Mulbarica*.—Simla gum is found here in good quantity. The Bhils specially use this gum for stimulating amorous desires.

42. *Asparagus adscendens*.—This grows in form of plants and the people here use its roots as *Asparagus adscendens*. It grows in jungles in abundance. The people here sell it at Rs. 9 per Kilo.

43. *Bambusa Arundinacea*.—There are many bamboo forests in the Satpuda hills. The people here torn ten bamboos and had brought out of them वांसकपूर, weighing about 2 tolas.

44. *Sidaordifolia* (Small).—This grows in form of Shrubs similar to those of *ocimum sanctum* and *Ocimum pilosum*. When one is wounded, it is used as poultice on the wounds.

45. *Butea frondosa*.—If the flowers of *Butea frondosa* are boiled and its poultice is kept on the lower part of abdomen it helps the flow of urine. Its seeds kill hookworms.

46. खादी मीडी, — This grows in the form of plants. Oil is extracted from its seeds. Its flowers are used for sour taste, in place of *Garcinia indica*.

47. Lac.—The committee has seen here in good quantity lac of *Zyzyphus Jujuba*, *Ficus Religiosa* and *Butea Monosperma*.

48. Gum.—The committee has seen here gum of trees of *Butea Monosperma*, *Boswellia Serrata*, *Ascacia Arabila*, *Acacia Catechu*, *Salmalia Malabaricum*, *Anogeissus latifolia*.

49. *Mucuna Pruriens*.—*Mucuna pruriens* found in Gujarat is of small seeds. These seeds are black in colour.

50. *Celosia argentea*.—This grows in form of plants. It has flowers of white and dark purple colour with glittering black small seeds. These seeds have a diuretic effect.

51. अजगरी,— This grows in the form of creepers. Their shape is similar to that of a python. It is a peculiar product of this region.

52. *Amorphophallus Sylvaticus*.—This grows here in good quantity. It is boiled dried and mixed with the jowar-flour and eaten up. (If it is boiled within the leaves of *Tamarindus Indica* its itching effect is destroyed).

53. *Solanum athocarpum*.—This grows here in good quantity.

54. *Solanum Indicum*.—This also grows here in good quantity.

55. *Lindenbergia urticae folia*.—The committee found this growing in huge quantity in form of small plants on stones near Kalvat. These plants are somewhat sticky and are used here as a nutritive food.

56. *Butea parviflora*.—This grows in the jungles of Dediapada.

57. तेलीओ कंद, .— This is found in between Kalavat and Kanzar. Here there are precipice about 80 feet. high and from under their base, oil-like water flows out and glitters at night. Here grows a tuber which is known by people as a Telio Kand.

The committee has come across extremely efficacious and divine medicines in the Satpuda regions, and this jungle is found to be the best of all the jungles on hills. Valleys are also to be found in good numbers. While the committee was touring this region, the officers accompanying the committee personally used to extinguish fires-flaring up in the jungles.

Whenever the committee returned to its camp after having toured this region, the atmosphere was thick with smoke due to the process of preparing coals.

At present, the contractors find only coals and they fail to recognise the vital medicines. They are interested only in the fact as to how the fuel can be procured cheaply. Shepherds see only grass and fodder; camel owners see only food for their camel and some see only timber. Thus, all have lost interest in these vital herbs. Twigs and branches and trees are respectively chopped off when only a leaf or branches can serve the purpose; and where trees are to be felled useful trees like those of *Bosvelia serrata*, *Terminalia Arjuna*, *Terminalia Bellerica*, *Randia dumetocum*, *Anthocephalus indicus*, etc. are cut down. With a view to preventing this wanton process and to create an emotional awareness of these vital, active, divine and extremely efficacious medicines, Government should celebrate Vana Parvas, and vana Mahotsavas, and propagate through cinema shows and preserve these herbs through fresh plantations. For this purpose, the Tribals should be educated through special films, and lectures about the glory of forest wealth. Also the State should take deterrent action. If no action is taken by the Government, the remaining wealth of forest will also dwindle within no time. This committee recommends that a Nursery near Rajpipla on the river Karjan should be set up on the lines of the Nursery in Dangs.

An Interview with the Highness of Rajpipla.—The committee members had the privilege to meet His Highness Shri Raghuversinhji Rajendrasinhji of Rajpipla at his place on 4th March 1965. The committee members also saw the younger Prince Shri Naharsinhji of Chhotaudepur. This meeting was held

in the presence of Kumar Shri Ranjeetsinhji Saheb of Chhotaudepur and Shri Hari-sinhji, etc. The Maharaja Shri disclosed that there are several diseases which can really be cured only by the Ayurvedic methods. But that requires an utmost precision in the matter of proportion, etc. of medicines. It is also necessary that a research on the Ayurvedic medicines is conducted. The Maharaja Shri warmly welcomed the committee and gave his unstinted support to the cause of Ayurved. The committee had also sought the guidance of the Maharaja Shri for its tours in this region.

This committee specifically recommends that a big store should be set up at Rajpipla. Many things may be stored up therein. One sub-store should be opened at Dediapada and another at village Gora on the banks of the river Narmada. Thus most of the herbs right from Jhagadia to Dediapada covering the banks of the river Narmada can be stored at Rajpipla. A central store controlling all these stores should be located at Ahmedabad. The committee recommends that a Directorate should be set up at Ahmedabad, which can centralise all the stores that might be set up at various places in the jungles of Gujarat for storing up herbs. The aspects of sale and manufacture of drugs, should be under the control of this Directorate.

The Bank of the river Narmada.—The committee saw the Narmada bank from Rajpipla to Garudeshwar, but the forest wealth on that side is rather meagre. The committee had proceeded towards Gora. The committee found that due to 45 to 50 inches of rainfall the plant life is quite rich on this side. Mal Samod has even trees of Terminalia chebula. This Terminalia chebula is quinquilinear. The climate here is so bracing even during scorching heat. There is no fear of a sun-stroke. The committee had seen rich forests particularly in the vicinities of Kanbodi and also in Chik Ghat about two miles away from Kanbodi. The committee specially halted at Dediapada, and the local people there had given warm welcome to the committee. The committee had taken a sample of the Terminalia chebula from there. After a halt in the Guest House run by the Dediapada Rajpipla Narmada Project the committee proceeded to the banks of Narmada. The committee members were happy at the very sight of the river Narmada.

“गङ्गा कनखले पुण्या
कुरुक्षेत्रे सरस्वती ।
ग्रामे वा यदि वा ऽरण्ये
पुण्या सर्वत्र नर्मदा ॥

(Reva Khand chapter 103 Skanda Purana).

This last lap of the tour of the committee ended on the banks of the blessed river Narmada. The members of the committee started on a visit of the jungles right from Rajpipla enroute foolvadi, Bhanka, Gora, Gora colony. The way from here was zigzag and full of diversions and the committee saw the forest wealth on way upto Haranfai and the way from there leads further to the banks of Narmada. Here in Mokhdibar there are only twelve streets. The streets hamlets having five to seven small houses. They are similar to the hamlets in the Gir forest. Near Mokhdi, there is a small but beautiful fall of Narmada. The committee, toured

the zigzag way and crossing numerous hills and ravines, for about eight miles right upto Shoolpaneshwar, reached Devganga. Throughout on this clear way and on hills and ravines, the committee saw herbs like *sypha angustifolia*, *Bala khet*, *Acacia leucophlora*, *Adima cordifolia*, *Aelge Marmelos*, *Adhatoda vasica*, *Alangium Salvifolium*, *Black Albizzia lebbek*, *Anogeiosus latifolia*, *Anona squamosa*, *premna Integrifolia*, *Afadirachta indica*, *Balanites Raxyburghii* *Kantasvans*, *Bauhinia*, *Racemosa*, *Borassus flabellifer*, *Boswellia Thurifera*, *Bridelia stipulans embica*, *Buchananta Lanza*, *Soparo*, *Butea Nomosperma*, *chilhar*, *Cappearias spinosa*, *careya Arborea*, *Cassia fistula*, *Madhuca Latifolia*, *Gamiari*, *Dalbergia Latifolia*, *Bombusa Vulgaris*, *Medarvo Vans*, *Celosia argentea*, *Spatholabus roxburghii*, *Soy-mida Febrifaga*, *Vitex negundo*, *Ixola Parviflora*, *Mangiferra Indica*, *Bosvellia Serrata*, *Berria Capensis*, *Artemisia Vulgaris*, *Tamarimdas Indica*, *Terminalia Belle-rica*, *Embelica Officinalis*, *Terminalia chebula*, *Terminalia Arjuna*, *Doodhlo Zyzyphus Jujuba*, *Zizyphus Xylopyrus*, *Carissa Corndus*, *Karbi*, *Cassia tora*, *Tarav*, *Achyranthas Aspera*, *Clematis Triloba*, *Helicteres isora*, *Abrus Precatorus*, *Aterocarpus Marsupium*. *Timosfora Cordifolia*, *Cymbopagon schaeanthus*, *Stephegyne Parvifolia*, *Desmostachya bipinnatu* and *Lobelica nicotianaefolia*, etc. The committee has not found minor herbs particularly during summer, but *linden-bergia Urticaefolia* grows in abundance in this region. The committee found *Sphaeranthus indicus* in large quantity near Shoolpaneshwar and vast cultivation of *Amaranthus Paniculatus* is also undertaken here. Leaving Gora, the committee had halted on its way. The place of pilgrimage of Shoolpaneshwar is situated on the Bhrigu mount. Here there is a temple of Mahadev and also a temple of Ranchhodji. At a distance of two furlongs, there is a beautiful fall and there is a big natural reservoir called Chakra Teerth or Moksha Kund. It is learnt that there is a cave of Markandeya Rishi here. The committee had had its meals here. All the members of the committee had after concluding their tour, taken a holy dip in this sinremoving Narmada as described in Reva khand with the chanting of the incantation "Narmada Hara" on the last day of the dark fortnight of Magha, and had also prayed before Lord Shoolpaneshwar for an overall development of the Ayurveda. It is a trueism to say that :—

“स्मराणात् जन्मजं पापं
दर्शनेव त्रिजन्मजम् ।
स्नानात् जन्म सहस्राख्यं
हन्ति रेवा कलियुगे ॥”

CHAPTER—XVII

CONCLUSION

After the constitution of the committee, for gardens of medicinal plants Hon. Minister for Health, Shri Mohanlalbhai had stated in its first meeting that medicinal plants have played a major role in the "Overall development of the Ayurveda. At present fake and artificial medicines, and drugs of doubtful origin are impeding the development of the Ayurveda, and it prejudicially affects treatment." In order to get acquainted with genuine medicines, and to find out where they usually grow and from where they can be easily and sufficiently procured and also with a view to securing their detailed history the committee have done their mighty best within a year after appointment, to collect all sorts of information by roving into forests, ravines, hills, river banks, and sea coasts. For the purpose of identification of these medicinal plants, the committee has secured the aid and assistance of the Tribals, Thakardas, Bhils, village Vaidyas, Saints and hermits well conversant with herbs and has referred to the books and glossaries containing voracious information on herbs and has also contacted the forest Department Officials. The committee has thus procured complete information about 500 herbs and has furnished the same in the appendices attached and has also given, their Hindi, Sanskrit and Latin equivalents to the extent possible. The original exponents of the Ayurveda have prepared different components, of the Ayurvedic drugs. During the intervening period, however, the link that established the significance of these herbs had been served. It is after a period of about 1,000 years, that this broken link will be restored. The committee has kept in mind the exhortation of Hon. Minister for Health and has restored the missing link and now if this tradition is further developed it will be the main plank for the mammoth social reform and public welfare. Once the recommendations of the committee are implemented the results will be there for all to see, within a few years, because on the basis of this scheme, dense forests of medicinal plants will be reared. Out of all these medicines, some have been identified while some still remain unrecognised. From out of these certain medicines were being used as anaesthetic. Charaka has mentioned sixteen "Moolinis" and nineteen "Faleenis". A number of them are to be found in Gujarat. In addition to this Sushurt has described 'Som' wherein on the last day of the dark fortnight of the month, the creeper is devoid of leaves and thereafter on every day leaves increase one by one. This creeper is not to be seen. Over and above this, Charaka and Sushurt have described vital and life-giving medicines such as जीवक, ऋषभक, मेदा, महामेदा, काकोली, क्षीर काकोली, ऋयिध and वृविध, as well as trees like Elacocarpus Ganitrus. कमलापति, etc. have been referred to in Ayurveda as divine medicines. The committee has, endeavoured a lot during a short period of one year in touring the jungles, ravines mountains and riverbanks in Gujarat to locate these herbs. The Forest Department, had extended its full cooperation.

The Aravalli hills-the oldest in the world-are situated in Gujarat. The herbs are even to-day lying in these hills and jungles as if they have been systematically planted. Most of the medicines which are wealth giving and beneficial and which

abate the Doshas and cure them are found in this region. The extensive Narmada coast stretching right from Gora Hanfeshwar has been covered and spread up with innumerable divine herbs. In Panchmahals, the jungle of Ratanmahal and the banks of the river Panam are even today thick with efficacious medicinal plants. *Capparis spinosa* growing near the Naran lake in Kutch is found to be more pungent, germinative and more effective than our ordinary mustard. *Balsmode-dron trigonus* in Baroda and Kutch, *Hydrocotyle asiatica* in Sabarkantha and *Schrebera Swietenoides* on the banks of Narmada are lying in plenty. *Aristokehia seecies* in Pavagadh, *Ougeinia dalbergioides* in Ambadungar, tubers in Vansda Dharampur and *Terminalia Chebula* on the side of Dediapada, *Orazylam Indicum* in Vijayanagar, *Emblca Officinalis* and *Terminalia Bellerica* in Girnar have been plentifully found in all these forests and the members of the committee have seen them and is thrilled with joy. The committee has also recommended additional plantation of the medicines like *stryehnos potatrum*, *Terminalia chebula*, *Oehro carpus*, *Longifolis*, *Gardenia lucida*, *Aconitum Heterophyllum*, *Bharangi*, *Pistacia integarrima*, *Pierorrhiza*, *Cocius aromaticus*, *Viola orata*, bwich tree, *Embuhiva*, *Ribes*, etc. which Gujarat has to import from outside.

The function of this committee for gardens of medicinal plants is, in a way a basic function for as a result of this scheme, new plantations will now grow up. Further, those herbs which have naturally grown up will be collected and stored and eventually will be useful to the people at large. Still further, the knowledge of these genuine herbs will be, disseminated among the people. More over, teaching and demonstration of these herbs will increase. Also, this will add to the beauty of the nation and due to growth of these medicinal plants and gardens, there will be better rainfall.

During the Moghul and British regimes, no one cared for the gardens of medicinal plants. For gaming, however, and through Teak plantation, the jungles were preserved. The princely states have more or less protected the forests by rigorous laws, as well as by planting new trees. But, it seems after independence, the Jagirdars have destroyed most of the jungles by granting monopolies. It appears that alongwith the forest wealth most of these medicinal plants have also been devastated. This type of wanton destruction of all these medicinal plants and gardens will come to an end with the implementation of the suggestions of this committee appointed by the Government of Gujarat and also a new chapter of development will be written in the history of gardens of medicinal plants and new forests will spring up.

(a) In order that the people may get genuine drugs, the committee has advocated fresh rearing of gardens of medicinal plants in Bardi Pada, Mahal, Kot and Kalibel areas in Dangs, near Kamleshwar dam in Gir, near Polo hills in Vijayanagar, in the fort of Bhujia in Kutch, in the victoria Park near Bhavnagar, near Manchi on Pavagadh, near Kileshwar on Barda, etc., so that the entire Gujarat State will be provided with the requisite medicines and Gujarat will also be able to sell the same to other States and will thereby, be able to increase its income after 10 years. These gardens of medicinal plants will augment the rain-fall.

(b) In order that the people of Gujarat can avail of the gardens of medicinal plants which are at present growing in Gujarat, the committee recommends setting up of stores, for the purpose of collecting the materials in their raw form at Ahwa in the region of Dangs as well as at the places like Vansda, Girgadhda, Rajpipla, Mundra, Balaram, Dhumli, Chhotaudepur, Deogadhbaria, Vijaynagar, Kileshwar and Victoria Park of Bhavnagar. By such collection of raw materials of these medicinal plants the Pharmacists, Vaidyas, Grocers and the public will be able to procure genuine stuff.

(c) In order to grow seeds and seedlings of these medicinal plants the committee has suggested setting up of a Primary Nursery at place situated on the banks of the rivers which have a perennial flow. Such Nurseries should be established on the banks of river, Damonganga, Mahi, Kauveri, Orsang, Balaram, Kushmandi, Harnav, Raval, Karjan, Narmda, Vishvamitri, Panam and Ambika, so that the plants grown in this Nursery can be developed and extended by planting their seedlings in the jungles and on hills and the same can also be given to the devotees of Ayurveda to enable them to plant the same in their gardens and orchards.

(d) The committee had undertaken a tour in Dangs in the month of March, in Gir in the month of April, in Kutch in the month of May, in Jesore and Danta in the month of June, in Bhavnagar in the month of July and in Vansda and selvas in the month of August. The committee toured Pavagadh and Chhotaudepur in the month of September, and Ghela Somnath, Shetrunjaya hills and the banks of the river Shetrunji in the month of October. The committee toured Bardo and Kileshwar in the month of January. The committee toured the jungles of Vijaynagar by the end of January 1965. It toured the jungles of Santrampur, Baria and Ratanmahal in February and the last lap of its tour in the jungles of Satpuda and Rajpipla was over in March, 1965.

The committee had toured the jungles covering the areas of subir, Pipaldad, Kalibel, Saputara, Bardipada, Chinchli, Mahal, the Poorna river bank, Pipli, Bhavnagadh, Vaghai, Kamleshvar Dam, Haran Dam, Kardapan, Kapuria, Kankai, Mata, Shirvam, Jamvadi, Mandvi, Jusadhar Girgadhda, Tulsi, Shyam, Matano Madh, Narayan lake, Mundra, Mandvi, Anjar, Bhachau, Rapar, Rudra Mata, upto Koteswar, Danta, Jesore, Jungle of Kochri, Arasur Hills, Balaram, Area of the Dantivada Dam, Victoria Park, Talaja area, Shior hills, Songadh, Khodiar, Amargadh, Khambhali, Tarkani, Inai Range, Daman, Galonda, Selvas, Sahyadri Range of Hills, Pavagadh, Shivrajpur, Dhankuva, Amba Hill, Area of the Narmada river bank, Area of the Bhutadia Farm, Shetrunjaya, The Shetrunji Bank, Ghela Somnath, Salemar, Osam Hill, Gope Hill, Elach Hill, Bardo, Kileshwar, Kolki, Jam Jodhpur, Bhanvad Vireshvar, Dhol, Jungle, Kal jungle, Polo jungle, Sona Valley, Panarava, Fulvadi Hill, Harnav Dam, Antarsumba, Parsoda, Kotda, Sanjeli, Santrampur, Lunavada, Dejar, Sapta kund, Baria, Kadana, Ratanmahal, Dediapada, Satpuda, Surpan, Kanbodi, and the coastal areas of the Narmada right from Gora to Shoolpaneshvar.

This committee has recommended opening of post Graduate courses in Chhotaudepur and Kileshwar, which will revive knowledge of the herbs which is almost lost and good herbalists will come out from Gujarat.

The committee has suggested setting up of Pharmacies at places like Vaghai, Victoria Park, in the vicinity of the Kadana Dam, Kutch, Mandvi, etc., so that the raw materials of the stores set up by the State Government can be availed of and the public will be able to procure genuine and absolutely pure medicines manufactured from those raw materials and the treatment given in Government dispensaries, and hospitals and by medicine-boxes will be successful on account of genuine drugs.

Plant life has been immensely useful to the mankind. Even Gods have hailed Terminalia Chebula among medicinal plants as a mother because, it gives and protects life. Such divine medicines have, during the past been totally ignored. This is a matter of regret and shame and this should set us thinking. After severe predicaments the mankind had again turned to such beneficial medicines and this augurs well for the future.

The committee feels gratified at the thought that it has been instrumental in serving the cause of Ayurvedic.

This is a moment of restoring Ayurveda back to its pristine prestige that and glory. The committee has underlined the truth that basic functions of Ayurveda lie in the rearing collection and utilisation of medicinal plants. It has tried to serve the cause of Ayurveda and has paid homage to our ancient culture and has been of service to the mankind. The committee is unable to express in words, the elated spirit and feeling of joy persistently experienced during its tour and activities.

Charaks is adjudged to be the best so far as science of treatment and diagnosis is concerned. The committee has seen potent medicines belonging to the जीवनीय विद्यादि, सारिवादी, पत्रकादि, पुरुषकादि, अर्जुनादि, पटोलादि, गुह्यादि, आरधादि, असनादि, वरुणादि, उषकादि, विरतवादि, अकादि, रोघ्रादि, सुरसादि, मुष्कादि, वासकादि, वचादि, प्रीयंगादि, अंबुष्टादि, मुस्तादि, न्यग्राधादि, अलादि, and श्यामादि वर्ग, and this section will also be useful to the public. Even the westerners endorse this view.

"If the physicians of the present day would drop from the Pharma Copea all modern Drugs and Chemicals and treat their patients according to the method of Charak there would less work for the undertakers and fewer chronic invalids in the words."

C. H. Clark. M. A. M. D. Philadelphia.

The committee has seen straw flush with the ground as well as the highest well-ornamented palm trees and minutest moss as well as huge Bunyan trees.

In the end the committee would like to express its feeling of gratitude to the Gujarat Government servants including Vaidya Mandals of various Taluka, Districts and villages and those others who have extended their help and co-operation.

The chairman is in particular thankful to all the members of this committee, because they have rendered their fullest co-operation have, worked efficiently and have contributed to enhance the value of this report. On several occasions under very trying circumstances, the personnel of the Drugs Control Administration have not been deterred by the odds.

Rajvaidya Rasiklal Jethalal Parikh (Chairman)

Vaidya Vasantrai Hargovinddas Gandhi

Vaidya Vaghji K. Solanki.

Rajvaidya Shantilal P. Joshi.

Rasiklal J. Parikh for Vaidya Jivraj R. Sidhpura. Zinabhai Darji.

Vaidya Dalpat R. Vasani.

R. H. Joshi.

Chunibhai Desaibhai Patel.

D. R. Jaiswal, for the Director of Industries,

B. V. Patel, (Convenor).

CHAPTER—XVIII

SUMMARY OF RECOMMENDATIONS

1. This committee recommends to the Government that the most useful medicinal plants should be grown in the State in forests, on river banks, canal areas, near reservoirs, in Parks and gardens and on hills and the same should also be preserved for treatment of the various diseases of human beings and for purification of their minds. This will also check the draining away of wealth to foreign countries.

2. Some of the city Municipalities and Village Panchayats are raising gardens in their respective villages. If these gardens also contain useful herbs and creepers and also fruit-bearing trees in considerably large quantities, people can be educated from the Ayurvedic point of view and they can recognise, identify and use such herbs to their benefit and can have better health free of cost. The Taluka Education Committees can impart the knowledge of such domestic medicines to the children by bringing them to such spots during excursions.

3. The sight of trees of *Emblica Officinalis* on either side of the road in between Kharatia and Paneli, while on way to Jamjodhpur, from Patanvav set the committee thinking that if such huge medicinal trees are planted on either side of the roads, the common populace can get free of cost the medicines conducive to their health for year to come. alongwith the cool shadow offered by such trees. Instead of the growing short-lived trees and incurring expenditure after them, it is desirable from the point of view of production and also from the hygienic point of view to grow the plants and herbs as are beneficial to mankind.

4. Touring the forest areas of the State and visting the circuit Houses Guest Houses, and Rest Houses, etc. this committee suggests that instead of alien trees, trees such as *Vitex negundo*, *Cassia fistula*, *Adansonia digitata* *Saraca Indica*, *Eriobendron Anfractuosum*, *Emblica ribes*, *Ficus religiosa*, *Thespesia*, *Populnea*, should be planted at all places of Circuit Houses and Guest Houses, wherever, there are gardeners for their maintenance. So far as creepers are concerned, instead of decorative creepers such as बोधनवेल, मधुनाशिनी, useful creepers such as *Jasminum grandiflorum* *Tinospora cordifolia* *Jasminum Aurticulatum*. etc. should be planted and instead of hedges of alien *Laosonia alba*, hedges of *Adhatoda Vasica*, *carissa corundar*, *premna Integrifolia*, *Caesalpina Orista*, etc. should be raised. Alien trees are only short lived and decorative, while trees of *Cassia fistula*, *saraca Indica*, *Minussops elengi*, *Sesbania Grandifloural*, *Pongamina Glabra*, etc. are longlived, decorative, productive, fragrant and useful as medicine.

An introduction to Ayurvedic herbs and information about their characteristics should be incorporated in the text-books so that the younger generation can be familiar with them.

6. With a view to encourage the persons conversant with the medicinal plants, their knowledge should be availed of by enabling them to participate in the schemes suggested by the committee.

7. If the knowledge of Ayurvedic herbs is imparted through short duration courses by a Botanist or a vaidya to the staff of the forest Department in the Forestry College the growth of the medicinal plants can be gather a momentum within a short period.

8. At present the contractors care only of coal, people only of fuel, shepherds only of fodder and the devotion towards the life giving and vital herbs is on the wane and where a leaf is required, twigs are being chopped off and where twigs are required, trees are being felled and where trees are required, trees like *Bosvellia serrata*, *Tirminalia*, *Bellerica*, *Randia dumestocum*, *Anthocephalus Indicus*, etc. are being cut down. In order to halt these irrational processes and also to create an emotional awareness towards the life-giving, divine and extremely efficacious medicines the Government should celebrate Van Mahotsavas, Van-Parvas and should propagate the same through cinema shows and should concentrate only on medicinal plants while raising trees.

9. This committee recommends that a De Luxe edition of the compendium of "Medicinal Plants and Gardens in Gujarat" with vivid coloured pictures of the medicinal plants of Gujarat and their characteristic, should be prepared and published.

10. This committee believes that Jungadh being a tourist centre and a place of pilgrimage, a "Herbarium" should be established there for which 20 to 25 acres of land with water facilities and with building as shown in the Appendix, should be acquired. It will be an observation centre provided the pictures of these herebs with their history and the specimens of parts and sub-parts of such plants are preserved and their utility is explained and information of genuine materials is presented and the herbs actually growing in the gardens, are all arranged therein for exhibition.

11. In respect of Dangs this committee recommends that the region being rich in medicinal plants, a garden of medicinal plants covering one thousand acres of land should be raised there. A Pharmacy in Vaghai and a store at Ahwa should be set up and an Ayurvedic Hospital should be established in Ahwa proper. 40 to 50 acres of land should be acquired for the pharmacy and a building for the Hospital should be constructed in about 20 acres of land.

12. In the Girregion, the river Raval flows near Jasadhar. There exists level land of about 500 acres. The owners of this land have migrated to Pakistan. This land being useful for garden of medicinal plants and also there being a perennial flow of water in this river, a garden of medicinal plants should be raised there. There is at present also a nursery in the river region. A nursery for medicinal plants should also be set up there. In addition to this, plantation of herbs can take place in the lower regions of Sitamadhi near Kamleshvar dam. There are at present vacant buildings in charge of P. W. D., 1 Vaidya, 1 Botanist and his staff should be accommodated there. Gir Gadhdha being a centre of forest, a Hospital of pure Ayurveda alongwith Panchkarma should be established for which 20-25 acres of land should be acquired and a building should also be constructed alongwith the staff quarters. Gir Gadhdha being also a centre of herbs a store of meidicinal plants should be set up there. For this purpose, 10 to 15 acres of land should be acquired and also a Godown and staff quarters should be constructed. A shed also should be constructed for drying the medicinal plants.

13. The climate of Kutch region is dry and there are certain potent herbs there. Hence this committee recommends that a T. B. Centre should be established near Narayan Sarovar on way from Matana Math to Narayan Sarovar, 100 acres of land should be acquired there and a hospital with 10 rooms should be constructed and an enclosure for 100 goats should be erected and trees of *Adhatoda Vasica* and *Afadirachta indica* should be grown in the surrounding areas. A garden for medicinal plants should be raised in Bhujia hill, which is fortified and which has level land inside and also has buildings. A boring with the staff required should be maintained. A store for the medicinal plants should be set up at Mundra for which provisionally 10 to 15 acres of a land should be acquired and a Godown and staff quarters and a shed for drying medicinal plants should also be constructed. A pharmacy should be set up in Mandvi city.

14. The Jesore hill is a younger brother of the Mount Abu in Gujarat. It is also considerably high and as such it is worth developing as a good hill station of Gujarat. In the forests of this region, are to be found many trees of *Alangium Salvifolium* and *Boswellia*, *Thu ifera* and as such, this committee specially recommends to the Government to develop a particular industry for extracting oil from *Alangium Salvi folium* and for gum plasters of gum oozing out of trees like *Boswellia Thurifera* and *Feula Galabnflua* and also to develop an industry for the oil extracted from *Balanites roxburghii* used in its application on wounds. The committee has seen in Danta plenty of tree of *Acacia Catechu* used on Leprosy and as such *Catechu* should be extracted and a factory of *catechu* should also be set up.

15. This committee recommends to the Government that small herbs growing abundantly in the forests are being devastated by sheep, goats, camels, buffaloes, etc. In order to prevent such a devastation, it is necessary that areas should be kept reserved in every forest and independent facility should be provided for animals in grass areas where the forest produce will not be affected. If these minor herbs are preserved, they will be extremely useful for manufacturing drugs. This forest being rich in *Buteamonesperma*, a big factory for extracting the essence of *Butea monosperma* roots should be established at Danta in this region. As ample stock of crude materials is likely to be available from these forests at Balaram, a stores should be set up by acquiring 10 to 15 acres of land and a Godown and a shed should be constructed there. The Bungalow of the Nawab should be used for staff quarters. If the Gangasagar Dam in the jungles of Kochri is raised by about 10 feet a spacious garden containing Ayurvedic medicinal plants can be prepared by acquiring about 100 acres of land just adjoining to the Dam, and about three to four hundred medicinal plants can also be planted therein. As the Balaram stream has a perennial flow, a primary nursery with Ayurvedic medicinal seeds and seedlings should be set up here.

16. The missionary education in Ayurveda at this stage is of special importance. For that purpose buildings worth about 20 lakh Rupees in Dant Wada colony which are likely to be spared, should be availed of and Missionary Vaidyas should be trained. This scheme should be organised by keeping special staff here. This important centre for creating a missionary institution will satisfy the yearning for the development of Ayurveda, felt by the Hon. Minister for Health and it will be a historical place, and if this scheme is given priority for realising the goal of Ayurveda, the committee specifically recommends for converting this centre into

a missionary one. Missions have been established by the Britishers at many places, like Anand, Luchhadia, Nadiad, Borsad, Bulsar, Surat, etc. In view of that, this committee specially recommends that immediate steps should be taken for utilising these buildings for establishing a Mission and also for making it an important place preserving Indian civilisation and culture. Capital expenditure is not to be incurred and the Government should make initial provision in respect of the recurring expenditure. The recurring expenditure should be restricted to Rupees one lakh every year. 9 to 10 devoted Vaidyas with missionary zeal should be engaged. They should be given a monthly pay between Rupees 300 to 500. If a Pharmacy of medicines is established there and if the people at large are served through the trained Missionaries, major portion of this expenditure can be recouped through nominal fees.

17. The Victoria Park at Bhavnagar is well protected. It is spread over 501 acres of land and is protected by wire fencing on all the four sides and it is provided with two large beautiful and pucca portals. There are good roads around this park and the internal roads are in good condition. There is commodious bungalow named "Sundar Avas" in this Park and there are also other five to six residential buildings. The buildings in this Park has electrical lights. There is a boarding house and a small garden in this park. There are also four to five pucca wells in this park, having a pond named "Krishnakunj". In view of all these facilities, this committee specially recommends raising a medicinal plant garden because that will be specially useful for imparting practical knowledge to the students of the Government Ayurvedic college, here. The Gaurishankar Lake adjoining this Park being full of water will be very useful for the medicinal plant garden, and this committee emphasises the need for creating a garden for medicinal plants and a Pharmacy in this Park. Buildings already existing there at present will, have to undergo additions and alterations.

18. The regions of Vansda, Dharampur, Selvas and the Sahyadri hills have been found very useful for particular types of tubers. A special "Research Centre" pertaining to the tubers should be established and these tubers should also be planted every year. This committee recommends that this Research Centre should be set up only in Vansda proper. 20 to 25 acres of land should be acquired for the same and a building worth Rs. one lakh should be erected thereon. Two Vaidyas and two Botanists and eight Tribals conversant with these tubers should be engaged and one store with its godown and a shed should also be constructed, so that these tubers can be sold elsewhere. Amorphophallous species, which cures, piles, grows abundantly in this region and this committee recommends that about 10 acres of land should be acquired near Anaval Mahadev or in Vansda on the banks of river Kaveri and a special Hospital should be set up.

19. The Pavagadh hill is also rich with herbs. This committee recommends that in about 50 acres of land near Manchi a garden for medicinal plants should be raised. For that purpose, 1 boring and 1 pump should be installed for drawing water directly from the river. There is Mendi Tank just in the vicinity. That also can be availed of. For this purpose, a special staff of one Vaidya, two up-Vaidyas and four persons conversant with the herbs should be engaged.

20. This committee recommends that two centres should be set up in Gujarat for the post-graduate study of Botany as a special subject. I Kileswar 2. Chhotaudepur these two places being situated in the central part of the forests, the students can be in constant touch with the medicinal plants. A building, therefore, of a Post-Graduate school at the cost of about one lakh rupees should be constructed here and three Botany experts should be engaged therein on salary of Rupees three hundred per month, and a college should be established by acquiring 10 acres of land.

21. On the Amba Dungar near Chhota Udepur here, about 500 to 1000 trees of Terminalia Chebula should be got planted every year. This committee specially recommends that this plantation should be made on the hills situated on the banks of the river Narmada right upto Hanfeshwar. After ten years once this Terminalia Chebula grow in abundance, huge income will be accruing every year and the difficulty for Gujarat in importing Terminalia Chebula from outside will be removed.

The Committee prefers the Don Hill and Saputara in Dangs for the plantation of Terminalia Chebula and recommends that such plantation should also be made on the Amba Dungar and the adjoining hills thereto in Chhota Udepur. On this line, quality trees of Terminalia Chebula should be planted on the Girnar, the Sahyadri hills, the Pavagadh and the Barda hills.

22. There is Salemar hill near Ghela Somnath. This committee recommends that a T. B. centre should be constructed on the hilly region situated on the river bank near the temple of Ghela somnath. Here, the climate is dry and the plantation of Adhatoda vasica can be made on a large scale. Adequate provision for maintaining goats can also be made here and as such 50 to 100 huts should be constructed and provision made for 4 Vaidyas, 5 up-Vaidyas, 4 male nurses and three attendants. Also one enclosure for goats should be prepared nearby and two herdsmen should be maintained.

23. Kileshwar is a noteworthy place from the Ayurvedic point of view and has good facilities. This committee specially recommends that 100 acres of land surrounding Kileshwar should be acquired for a garden of the medicinal plants and it also recommends that the post-Graduate classes should be opened there. The committee also recommends that this Bungalow should be utilised as a Post-Graduate college. It should be got repaired at the earliest at an estimated expenditure of Rs. 50,000. Small Rooms should be constructed, boring should be attempted, doors and windows and also light fittings, etc. should be provided. This Kileshwar, being well-surrounded with forests, this committee recommends that a stores for medicinal plants should be set up and further recommends that this scheme should be so organised as to make this small store, a supplementary one of the main stores at Dhumli.

24. *Vijaynagar*.—The committee has felt that Sabarkantha is so to say a garden of medicinal plants and under the currents of the river Hiranya Ganga (also known as Harnav) and also below the surface of the earth water flows and hence medicinal plants here remain resplendent even during the hottest part of summer. This committee, therefore, recommends that a garden for medicinal plants should

specially be raised near the Polo jungle. For that purpose, 300 acres of land near Abhapur on the bank of Harnav, should be acquired and expenditure of about one lakh rupees should be incurred after a building for the staff and the staff quarters. 1 Vaidya, 2 up Vaidyas and 10 Tribals acquainted with the medicinal plants should be employed therein. In addition to this, a store should be set-up at Vijaynagar, wherein the medicinal plants from all over Sabarkantha can be collected and stored. 10 to 15 acres of land should be acquired in Vijaynagar for constructing a store, a Godown and a shed and one Botanist and three Tribals acquainted with these medicinal plants should be employed. There should also be appointed one stores keeper and an office-clerk. On the banks of Harnav, one Primary Nursery should specially be constructed by acquiring one acre of land and should be made to function under the supervision of the Department in charge of gardens for medicinal plants.

25. Lac is produced in large amounts in the forests of Ratanmahal and on the banks of the river Panam, but it is due to production of synthetic lac that this produce has suffered and the Government should set up here a lac development centre and should also formulate a concrete scheme as would increase its production.

26. Hundreds of buildings near the Kadana Dam are lying idle. This committee recommends that all of them should be made availed of for the purpose of a store and godowns and a pharmacy for preparing काष्ठदिबूर्ण, etc., so that no capital expenditure is incurred and other expenditure on the staff, etc. can be met from the Pharmacy and the store themselves.

27. This committee recommends that about 5 to 10 acres of land should be acquired at Rajpipla and a store should be set-up in order to collect and store medicinal plants lying in abundance in the jungles of Dediapada, the Satpuda hills and Narmada bank regions. For that purpose, this committee recommends that a Godown, a store, a shed and the staff quarters should be got constructed at an expenditure of Rupees one lakh. An establishment of one vaidya, one Botanist, one clerk and one store-keeper and also eight local Tribals should be maintained.

28. The committee recommends that the co-ordinating activities for the stores for collecting and storing the medicinal plants that may be set up at different places in Gujarat State should be entrusted to the Directorate at Ahmedabad so that the sales and production aspects can be looked after by this very Directorate.

29. The committee recommends that in all, twelve Primary Nurseries should be set-up in Gujarat as shown below—

1. Near Jasadhar on the banks of the river Raval.
2. Near the Dantiwada Dam on the banks of the river Banas.
3. Near Balaram on the banks of the river Kusmandi.

4. Near Polo on the banks of the river Harnav.
5. Near Kadana on the banks of the river Mahi.
6. Near Kel on the banks of the river Panam.
7. Near Pavagadh on the banks of the river Vishvamitri.
8. Near Chhotaudepur on the banks of the river Orsang.
9. Near Rajpipla on the banks of the river Karajan.
10. Near Vaghai on the banks of the river Ambika.
11. Near Anaval on the banks of the river Kaveri.
12. Near Rakholi on the banks of the river Damanganga.

The expenditure after all these twelve Nurseries is estimated at Rs. 3 lakhs and their plans have been shown in the Appendix.

And thus, the Report of the Committee for gardens of Medicinal Plants of Gujarat State and with the following Chapters:—

Chapter	I	Appointment and scope of the committee.
„	II	Commencement of the Committee's Work.
„	III	Procedure adopted by the Committee.
„	IV	Outline of Proceedings.
„	V	Dangs.
„	VI	Gir and Girnar.
„	VII	Kutch.
„	VIII	Danta and Jesore.
„	IX	Bhavnagar, Victoria Park.
„	X	Vansda Dharampur.
„	XI	Pavagadh and Chhota Udepur.
„	XII	Shetrunjay and Ghela Somnath.
„	XIII	Vijaynagar.

Chapter	XIV	Osam and Bardo (Kileshvar).
„	XV	Ratan Mahal, Santrampur and Deogadh Baria.
„	XVI	Satpuda and the Narmada bank area.
„	XVII	Conclusion.
„	XVIII	Summary of Recommendation.

APPENDIX

An appendix has also been provided by the committee, wherein a list of the medicinal plants noticed by the committee has been given. Their Hindi, Sanskrit and Latin equivalents so far as they are available have been furnished in the Appendix. The committee has also indicated the places where these medicinal plants have been noticed. The committee has also recommended to the Government with suitable suggestions the places shown on separate maps visited by it. We, the members of the Committee, hope and pray that our best endeavours will not go unnoticed by that the Government and that it will also implement the suggestions at the earliest.

Rajvaidya Rasiklal Jethalal Parikh	Chairman	23—3—1965
Vaidya Vasantrao Hargovinddas Gandhi	Member	23—3—1965
Vaidya Vaghaji K. Solanki	„	„
Rajvaidya Shantilal Pranjivan Joshi	„	„
Vaidya D. R. Jasani	„	„
Shantilal Chunilal Shah	Convenor and Director, Drugs Control Administration.	„

Recommendations in respect of the Dangs region

(A summary of recommendations).

1. A medicinal plant Garden. (To be raised in 1000 acres of land).
Place :— Near Mahal, Bardipada and Kalibel.
2. Medical Store :
(15 to 20 acres of land to be acquired).
Place : Ahwa.

3. Ayurvedic Hospital.
(20 acres of land to be acquired).
4. Minor Herbarium
(20 acres of land to be acquired).

Place :— Ahwa.
5. Research Centre.

(Herbs to be explored and their characteristics to be discerned and displayed.)

Place :— Kalibel.
6. Terminalia Chebula of good quality should be planted every year on Don and Saputara and Cascheunuts should be planted every year in Dangs.
7. *Primary Nursery*— A Primary Nursery should be set up near Vaghai, on the banks of the River Ambica; one acre of land should be acquired for the purpose and one well with a pumping machine should be provided therein.

Recommendations in respect of Gir region

(A summary of recommendations.)

1. A Medicinal Plants Garden :
 1. Bhimchas Medicinal Plant Garden
(500 acres of land to be acquired).

Place : Near Jasadhar on the banks of the river Raval.
 2. Kamleshvar medicinal plant garden
(100 acres of land to be acquired).

Place : Sitamadhi-Kamleshvar Dam.
2. Medical Store:
(10 to 15 acres of land to be acquired).
Place: Girgadhda.
3. Ayurvedic Hospital.
(20 acres of land to be acquired).
Place: Girgadhda.

4. Large Herbarium
Place: Junagadh.
5. Primary Nursery of Medicinal Plant Garden
Place: Near Jasadhar in the Bhatha of the River Raval.
6. Plantation of (High Quality) Terminalia Chebula trees on Girnar.

Recommendations in respect of Kutch Region
(A summary of recommendations.)

1. Medicinal Plants Garden
(583 acres of land to be acquired).
Place : Bhujia Fort, Bhuj (Kutch).
2. Medical Store.
(15 to 20 acres of land to be acquired).
Place : Mundra (Kutch).
3. T. B. Centre.
(100 acres of land to be acquired).
Place : Near Narayan Lake.
4. Pharmacy.
(40 acres of land to be acquired).
Place : Mandvi.
5. The Arabian Sea should be re-named as the Dhanvantary Sea.
6. Caschew trees should be planted on the coastal regions of Kutch.

Recommendations in respect of Danta—Jesore Region.

(A summary of the recommendations)

1. Medicinal Plants Garden.
(100 acres of land to be acquired).
Place : In the jungles of Koohari near the Ganga Sagar Dam.

2. Medical Store.
(In the The Nawab's Bungalow if available.)
Place : Balaram.
3. Missionary Centre for Vaidyas.
Place : Near the Dantiwada Dam,
to be housed in the P. W. D. buildings.
4. Industrial Centre for the extraction of oil from *Pinus Longifolia*,
Alangium Salvifolium and *Balanites roxburghi* and factories for the
preparation of Catechu from *Acacia Catechu* and also for the extra-
ction of essences from *Butea nomosperma* to be established.
Place : Danti.
5. 50 acres of land to be acquired near the Dantiwada Dam, a Small
Medicinal Plants Garden to be planned therein.

Recommendations in respect of the Victoria Park.

1. Medicinal Plants Garden.
(501 acres of lands to be acquired)
Place : Bhavnagar
2. Medical Store.
Place: Victoria Park.
3. Ayurvedic Pharmacy
Place : Victoria Park.
4. The name of the Victoria Park should be changed to Dhanvantary Park.

Recommendations in respect of Vansda Selvas.

(A summary of the recommendations)

1. Research centre for Tubers.
(25 acres of land to be acquired)
Place : Vansada.
2. Piles Cure Hospital.
(25 acres of land to be acquired)
Place : Vansda.

3. Primary Nursery.

Place: (i) Near Shukleshwar Mahadeo on the banks of the river Kaveri

(ii) Near Rakholi on the banks of the river Daman Ganga.

4. Medical Store.

Place:- Vansda.

Recommendations in respect of Pavagadh and Chhota-Udepur.

(A summary of recommendations.)

1. Medicinal Plants Garden.

(50 acres of land to be acquired.)

Place : Pavagadh.

2. Medical Store.

(15 to 20 acres of land to be acquired.)

Place : Chhota Udepur.

3. Post-Graduate College for Medicinal Plants.

Place : Chhota Udepur.

4. Terminalia Chebula to be got planted on Amba Dungar and on the hills right upto Hanfeshwar.
(Best Quality Terminalia Chebula to be planted.)

5. Primary Nursery:—

(i) Near Chhota Udepur on the banks of the river Orsang.

(ii) On Pavagadh, near the mouth of the river Vishvamitri.

Recommendations in respect of Ghela Somnath Region.

1. T. B. Centre.

Place : Ghela Somnath

On the Minaldevi hill.

Recommendations in respect of Sabarkantha Region.

(A summary of recommendations.)

1. Medicinal Plants Garden.
(300 acres of land to be acquired).
Place : Near Abhapur in the Polo jungles on the banks of the river Harnav.
2. Medical Store.
(10 to 15 acres of land to be acquired.)
Place : Vijaynagar.
3. Primary Nursery.
(1 acre of land to be acquired.)
Place : On the banks of the river Harnav
(Near Antarsumba).
4. Research Centre for the medicinal plants Garden.
Place : Chitravichitra (Poshina)
5. Informative Booklets to be published in respect of places of medicinal plants like Vireshvar.

Recommendations in respect of Osam-Barda.

(A summary of recommendations)

1. Medicinal Plants and Garden.
(100 acres of lands to be acquired)
Place : Kileshwar
2. Medical Store
(Sub-store)
Place : Kileshwar
3. Major Medical Store.
(10 to 15 acres of land to be acquired).
Place : Ghumli.

4. Post-Graduate College of Medicinal Plants

Place : Kileshwar Bungalow.

5. Herbarium.

(20 to 25 acres of land to be acquired)

Place : Junagadh.

Report on Santrampur Devgad Baria Region.

1. Medical Store.

(15 to 20 acres of land to be acquired)

Place : Devgad Baria.

2. Research Centre for Lac.

Place : Ratanmahal Jungles.

3. Medicinal Pharmacy and Store for काष्ठादि, drugs.

Place: In the P. W. D. Buildings on the Kadana Dam.

Recommendations in respect of Satpuda and Narmada Bank region.

(A summary of recommendations.)

1. Medical Store.

(15 to 20 acres of land to be acquired.)

Place : Rajpipla.

2. Small Medical Store.

(5 to 10 acres of land to be acquired.)

Place : Dediapada.

Places for Medicinal Plants Gardens

1

Places for Stores.

2

1. Bardipada, Mahal, Kalibel

1. Ahwa (Dangs).

Bhimyas Jasadhhar near Raval, river bank.

2. Girgadhda (Gir.)

Kamleshvar dam near Sitamadhi dam.

3. Mundra (Kutch.)

4. Bhujio (Kutch.)

1	2
5. Jungle of Kochari, near Ganga Sagar dam (Palanpur.)	4. Balaram (Palanpur)
6. Victoria Park (Bhavnagar).	5. Victoria Park (Bhavnagar).
7. Manchi (Pavagadh)	6. Vansda
8. Kileshwar	7. Chhota Udepur
9. Jungle of Polo.	8. Kileshwar
	9. Ghumli
	10. Vijaynagar
	11. Devgadhi Baria.
	12. Rajpipla
	13. Dedia Pada
	14. Danta
	15. Kadana.

APPENDIX

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SCHEDULE — I

*Medicinal Plants noticed by the Committee**Group — A.*

Medicines — 538.

Alongwith complete information in respect of places of their growth and their Gujarati, Sanskrit, Hindi, and Latin equivalents.

Note. 1. While touring the different regions of Gujarat, it has been observed that one and the same medicinal plant is known in Gujarati or Hindi under different nomenclatures. The names of some of these medicinal plants in the above list have, therefore, been repeated twice or thrice; for example a medicinal plant known as તરવટ, in Sabarkantha is known as નસોતર, in the Gir.

2. The committee has obtained information about the medicinal plants growing during other seasons over and above the seasons during which it visited the jungles.

 SCHEDULE — II

Medicinal plants noticed to a certain extent in the form of a plant or a tree which are worth growing in Gujarat.

Group 'B'

Medicines No. 539 to 1125.

Alongwith complete information in respect of places of their growth and with their Gujarati, Sanskrit, Hindi and Latin equivalents.

 SCHEDULE — III

1. A map showing places of hermitages of the sages and saints, owing to whose efforts the medicinal plants in Gujarat, acquired importance in the past.

2. A map showing designs of quarters and roadside tenements and garden of medicinal plants and Herbarium.

(a) A map showing 'A' 'B', 'C', and 'D' type tenements.

(b) A map showing designs of 'E' and 'F' type tenements.

(c) A map showing the platform design type 'G'.

SCHEDULE—IV

Budget in respect of various Schemes as recommended by the Committee for gardens of medicinal plants showing pay of Vaidrajs, Malis, attendants and Tribals conversant with the medicinal plants, with estimates of buildings for quarters and sheds for herbaria etc.

Committee for Gardens of medicinal plants, Gujarat State.

Budget showing initial and current expenditure towards various schemes such as gardens for medicinal plants, medical stores, etc. as recommended by the Committee, showing pay of Vaidraj's, Malis, attendants and tribals conversant medicinal plants, with estimates of buildings for herbaria, stores and sheds.

Sr. No.	Unit No.	Initial expenditure	Annual cur- rent expen- diture
1. Gardens of medicinal Plants	9	968000	227800
2. Stores for raw materials of medicinal Plants.	15	1450500	248400
3. (a) Junagadh Herbarium	1	152500	14420
(b) Herbarium at Dangs, Ahwa	1	102500	14420
4. T. B. Eradication centre in Kutch (Near Narayan Lake)	1	156000	43060
5. Missionary Centre on Dantiwada Dam in Banaskantha	1	100000	64300
6. Research centre in Vansda	1	152500	33760
7. Kileshwar Post-Graduate study centre (Plant research centre)	1	—	17600
8. Chhotaudepur Post-Graduate study centre (Plant research centre)	1	100000	17600
9. Ghela Somnath T.B. eradication centre.	1	121000	43060
	32	3303000	724420

STATEMENT SHOWING THE DETAILS OF INITIAL AND CURRENT EXPENDITURE IN
RESPECT OF GARDENS FOR MEDICINAL PLANTS.

Scheme No.	Name of the scheme	Area	Botanist		Mali Gardener		Clerk-cum-typist		Labourers Conversant with plants		Watchman		Sheds	Wells	Pumps	Equipments		
			Total posts	No. of "A" Class Quarters	Total posts	No. of "B" Class Quarters	No. of posts	No. of "C" Quarters	Total posts	No. of "D" Class Quarters	Total posts	'E' Class tenements	'F' Class tenements				Initial	Current
																	17	18
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Acres																		
1	Gir Region Bhimchari Medicinal Plant Garden	500	1	1	1	1	1	1	10	10	2	2	1	1	2	20000	5000	
2	Dangs : .. (1) Bardipada (2) Mahal (3) Kalibel	1000	1	1	2	2	2	2	20	20	4	4	2	2	2	40000	10000	
3	Jungle of Polo	300	1	1	1	1	1	1	10	10	2	2	1	1	1	20000	5000	
4	Manchi ..	50	1	1	1	1	1	1	4	4	1	1	1	1	2	10000	2500	
5	Killeshwar ..	100	1	..	1	1	1	1	10	10	2	2	1	1	1	20000	5000	
6	Near Kaml- eshwar Dam (Shivmadhi)	100	1	..	1	..	1	..	10	..	2	..	1	1	1	20000	5000	
7	Victoria Park	501	1	..	1	..	1	..	10	..	2	..	1	..	2	20000	5000	
8	Bhujio ..	100	1	..	1	..	1	..	10	..	2	..	1	1	1	20000	5000	
9	Gangasagar Dam near Palanpur Kochri Jungle	100	1	..	1	..	1	..	10	..	2	..	1	1	1	20000	5000	
Total ..			9	4	10	6	10	6	94	54	19	11	10	9	13	190000	47500	

STATEMENT—I

Sr. No.	Designation			No. of Posts	Pay	D. A.	Total	Total Annual expenditure
1	2			3	4	5	6	7
1.	Botanist	..	..	9	250	50	300	32,400
2.	Mali	..	..	10	75	25	100	12,000
3.	Clerk-cum-Typist	..	..	10	100	25	125	15,000
4.	Labourers Conversant with plants			94	90	..	90	10,520
5.	Watchman	..	..	9	60	25	85	19,380
								<u>1,80,300</u>

Cost of buildings

1 (A)	Class	..	..	..	4	12000	48000
2 (B)	Class	..	..	..	6	8500	51,000
3 (C)	Class	..	..	..	71	4,000	2,84,000
4	Sheds	..	..	..	10	24000	2,40,000
5	Wells	..	..	..	9	10000	90000
6	Pumps	..	..	..	13	5000	65000
Total					..		<u>778000</u>

Equipments (Initial Expenditure)

9.5 Unit		
Per Unit	20000	190000

Current expenditure towards equipments

9.5 Unit		
Per unit	5000	47500
		<u>2,37,500</u>

Initial Expenditure

	778000	
	190000	
Total	..	<u>968000</u>

Current Annual Expenditure

	180300	
	47500	
Total	..	<u>227800</u>

**STATEMENT SHOWING DETAILS OF EXPENDITURE TOWARDS THE CONSTRUCTION
OF STORES FOR RAW MATERIALS OF PLANTS AS WELL AS FOR THE
STAFF THEREOF**

Sr. No.	Name of the Store	Vaidraj		Store-keeper		Tribal employees	
		Total Posts	No. of 'A' Class Quarters	Total Posts	No. of 'B' Class Quarters	Total Posts	No. of 'C' Class Quarters
1	2	3	4	5	6	7	8
1.	Dangs (Ahwa)	..	1	1	1	8	8
2.	Mundra	..	1	1	1	8	8
3.	Gir Gadhda	..	1	1	1	8	8
4.	Kileshvar	..	1	1	1	8	8
5.	Dhumli	..	1	1	1	8	8
6.	Victoria Park	..	1	1	1	8	8
7.	Dediapada	..	1	1	1	8	8
8.	Vijaynagar	..	1	1	1	8	8
9.	Balaram	..	1	..	1	8	..
10.	Danta	..	1	1	1	8	8
11.	Devgadhi Baria	..	1	1	1	8	8
12.	Chhota Udepur	..	1	1	1	8	8
13.	Rajpipla	..	1	1	1	8	8
14.	Vansda	..	1	1	1	8	8
15.	Kadana	..	1	..	1	8	..
Total		..	15	13	15	120	104

Godown
office
and shed
to be
attached
to each
store.

STATEMENT NO. 3 "A"

Herbarium at Junagadh

Sr. No.	Designation		No.	Pay	D.A.	Total	Total Annual Expenditure
1	2		3	4	5	6	7
1.	Director		1	250	50	300	3600
2.	Clerk		1	100	25	125	1500
3.	Peon		1	60	25	85	1020
4.	Watchman		1	60	25	85	1020
5.	Mali		1	75	25	100	1200
6.	Labourer		1	90	..	90	1080
7.	Repairs to buildings and contingencies		..				5000
							<u>14420</u>

Cost of Buildings

Building for Herbarium

Total Cost

100000

For Staff

1. (a)	Class		1	12000	12000
2. (b)	Class		1	8500	8500
3. (c)	Class		8	4000	3200
					<u>152500</u>

Initial expenditure

152500

Annual Expenditure

14420

STATEMENT NO. 3 "B"

Herbarium at Dangs (Ahwa)

Sr. No.	Designation	No.	Pay	D.A.	Expenditure	Total expenditure
1	2	3	4	5	6	7
1.	Director	1	250	50	300	3800
2.	Clerk	1	100	25	125	1500
3.	Peon	1	60	25	85	1020
4.	Watchman	1	65	25	85	1020
5.	Mali	1	75	25	100	1200
6.	Labourer	1	90	4	90	1080
7.	Repairs to Buildings and annual expenditure	..	..	..	..	5000
Total					..	14420

Cost of Buildings

Total Cost

Building for Herbarium

50000

For Staff

Sr. No.	Class	No.	Cost per tenement	Total Cost
1	2	3	4	5
1 (a)	Class	1	12000	12000
2 (b)	Class	1	8500	8500
3 (c)	Class	8	4000	32000
				102500

*Initial Expenditure**Current Expenditure*

102500

14420

T. B. ERADICATION CENTRE AT KUTCH

(Near Narayana Lake)

100 acres of land

10 room-hospital

Staff

Sr. No.	Designation	No.	Pay	D. A.	Total	Total annual expenditure
1	Vaidya ..	4	300	50	350	16800
2	Up Vaidya ..	2	250	50	300	7200
3	Nurse ..	4	100	25	125	6000
4	Servant ..	3	60	25	85	3060
5	Repairs to buildings and contingencies ..	..	..	..	..	10000
						<u>43060</u>

Cost of Buildings

1. 10 Room Hospital	40000
2. Enclosure for 100 goats.	5000
	<u>45000</u>

Tenements for Staff

Sr. No.	Class	No.	Cost per tenement	Total Expenditure
1.	(A) Class	4	12000	48000
2.	(B) Class	6	8500	51000
3.	(C) Class	3	4000	12000
				<u>111000</u>

Initial Expenditure

Current Annual Expenditure

45000

43060

111000156000

MISSIONARY CENTRE ON THE DANTIWADA DAM IN BANASKANTHA

Staff

Sr. No.	Designation	No.	Pay	D. A.	Total	Total Expenditure
1.	Missionary Vaidya	10	300	50	350	42000
2	Clerk ..	2	100	35	135	3240
3	Assistant Vaidya	1	200	45	245	2940
4	Watchman ..	3	60	25	85	3060
5	Ward Boy ..	3	60	25	85	3060
6	Repairs to Buildings and contingencies	..	..	..	..	10000
Current Annual expenditure.						64300

Cost of Buildings

1. Buildings are ready but cost towards additions and alterations. 100000

STATEMENT NO. 6.
Research Centre at Vanda
Staff

Sr. No.	Designation	No.	Pay	D. A.	Total	Annual expenditure
1.	Vaidya ..	2	300	50	350	8400
2.	Botanist ..	2	250	50	300	7200
3.	Tribals ..	8	60	25	85	8160
4.	Repairs to buildings and contingencies ..	..	..	..	..	10000
						33760

Cost of Buildings

1 building 1,00,000
 For Staff

Sr. No.	Class	No.	Cost per tenement	Total cost
1.	(A) Class	1	12,000	12,000
2.	(B) Class	1	8,500	8,500
3.	(C) Class	8	4,000	32,000
				52,500

<i>Initial Expenditure</i>	<i>Current</i>	<i>Annual Expenditure</i>
1,00,000		33,760

52,500

1,525,00

STATEMENT NO. 7

(for plant research)

Post-Graduate Study Centre, Kileshtar

Staff

Sr. No.	Designation	No.	Pay	D. A.	Total	Annual expenditure
1.	Expert Botanist	3	300	50	350	12600

Cost of Buildings

Buildings are ready.	12,600
Repairs to Buildings and contingencies.	5,000
Total	<u>17,600</u>

STATEMENT NO. 8

Post-Graduate Study Centre, Chhotaudipur

(For Plant research)

Sr. No.	Designation	No.	Pay	D. A.	Total	Annual Expenditure
1.	Expert Botanist ..	3	300	50	350	12,600
2.	Repairs to Buildings and contingencies	..	..	..	..	5,000
Total ..					..	17,600

Cost of Buildings

1.	Building	..	..	..	..	1,00,000
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STATEMENT NO. 9

Ghela Somnath T. B. Eradication Centre

Sr. No.	Designation	No.	Pay	D. A.	Total	Annual Expenditure
1.	Vaidya	4	300	50	350	16,800
2.	Up-Vaidya	2	250	50	300	7,200
3.	Nurses	4	100	25	125	6,000
4.	Servants	3	60	25	85	3,060
5.	Repairs to buildings and contingencies	..	..	..	..	10,000
					Total ..	43,060

Cost of Buildings

1. Shepherd —

Enclosure for goats	500—10—5000
10 Kutcha rooms	5000
Enclosure for 100 goats	5000
	10,000

Tenements for Staff

Sr. No.	Class	No.	Cost for tenement	Total expenditure
1. (A)	Class	4	12,000	48,000
2. (B)	Class	6	8,500	51,000
3. (C)	Class	3	4,000	12,000
				1,11,000

*Initial Expenditure**Current annual expenditure*

10,000
1,11,000
1,21,000

43060

SCHEDULE V

1. Map showing particulars of the Primary Nursery down by the Committee for gardens of medicinal plants.
 2. Map showing the places selected for the Primary Nursery by the Committee for gardens of medicinal plants, Gujarat State.
-

SCHEDULE--VI

Budget for the Primary Nurseries for the Gujarat State

Employment potential.—Gardens of Medicinal Plants, Herbarium, research stations and Primary Nurseries will also significantly contribute towards providing safe and able employment to persons residing in the surrounding areas thereof in addition to their being useful in supplying medicines necessary for Ayurveda as well becoming helpful in propagating Ayurveda. It will be pertinent to state that additional employment will possibly be provided through stores of these herbs. An estimate as to the annual cost for collection of herbs in these stores as well as the amount that will be incurred after labour, is given below:—

Sr. No.	Name of the place	Annual estimated cost of medicines	Annual estimated expenditure on employment.
1.	Gir Gadhdha	200000	50000
2.	Ahwa	200000	50000
3.	Mundra	200000	50000
4.	Balaram	300000	75000
5.	Victoria Garden, Bhavnagar	50000	12500
6.	Vansda	200000	50000
7.	Chhota Udepur	300000	75000
8.	Killeshtar	100000	25000
9.	Dhumli	100000	25000
10.	Vijaynagar	300000	75000
11.	Devgadh Baria	300000	75000
12.	Rajpipla	200000	50000
13.	Dediapada	100000	25000
		2550000	637500

seen from the details given above that it will be possible to provide annual employment at the cost of Rs. 637500. Calculating the Rs. 1.75 as daily wages per person, about a thousand persons per day will be provided employment only through the stores.

In addition to this, it is estimated that the centres, gardens of medicinal plants, and primary nurseries will be able to provide employment as under:—

	<i>Monthly employment potential</i>
1. Research Centres ..	500
2. Gardens of Medicinal Plants ..	4500
3. Primary Nurseries ..	1300
Monthly strength	6300

∴ daily No. $6300 \div 3 = 210$

30

As per the above calculation, in all 1210 persons will be able to get daily wages. Besides, this income will particularly go to the people belonging to the regions considered to be backward. Such income will go a long way in improving their financial position.

SCHEDULE--VII

A copy of the statement about Kaliya Kanda.

We, the undersigned Vaidya Atiya Devna and Vaidya Ganya Nakatiya and Dehbiya Narsi of Village Kanbodi, state on being interrogated that we here eat Kaliya Kand during shortage of food by first making it into pieces and thereafter keeping it in a bamboo basket in running water for 24 hours. After it is consumed we do not feel hunger for three days. There are no inebriating or toxic effects. Nor is it harmful. Thus we tide over our period of shortage of food. We use this Kand since generations and we, have not suffered in any way. God has blessed the poor by producing this Kand.

Village : Kanbodi
Dated : 2-3-1965.

Right hand thumb impression
of Atiya Devna.

R. H. T. I. of Ganya Nakatiya
" " " " of Dehbiya Narsi.

Kakarpad Group Panchayat
Sarpanch Ramubhai Bhulabhai
Madhavsinh Barot
Forest Contractor, Rajpipla.