

1.2 Resume of the scientific activities of the Council :—

The member-secretary informed the Governing Body about the on-going activities pertaining to different schemes. Dr. Jugal Kishore, Chairman of the Scientific Advisory Committee, Dr. M.M.S. Ahuja Head of the Department of Medicine, All India Institute of Medical Sciences, spoke about the achievements of the Council and expressed that good and commendable work was being done by the Council. The Hon'ble Minister enquired about the work being done on the antifertility action of homoeopathic drugs, and was informed that the unit of the Banaras Hindu University had successfully demonstrated antifertility action of Pulsatilla and Caulophyllum on rats/mice.

It was also informed that Research papers on the Project have been published in India and abroad. In the course of deliberations the work done at the Homoeopathic Pharmacopoeia Laboratory and Publication of Homoeopathic Pharmacopoeia were appreciated and the members felt that better publicity, especially through publication is required about the work being done in Homoeopathy. There was also general agreement that general lectures be prepared on Homoeopathy which could be delivered or distributed to the students of modern medicine.

2. Mushrooms

In the last Bulletin an identification of *Agricus muscarius* was reported which has brought about a clear cut methodology of distinction of mushrooms used in the Homoeopathy and other systems. Recently, a new edible mushroom had been reported from plains of U.P. by National Botanical Research Institute, Lucknow. They have presented a record of such mushroom varieties and have claimed protein and amino acids as high as; lysine 7.2 percent with other essential amino acids plus water soluble proteins (24.2 percent). It reminds of the introduction of *Lecithin* in Homoeo, which is known to have a favourable influence upon the nutritive condition and especially upon the blood and hence its use in anaemia and convalescence, neurasthenia and

insomnia. It is an excellent galatagog, renders milk more nourishing and increases quantity.

This may be of interest to scientific workers of Council engaged in the preservation and maintenance of plants.

3. Herbarium Techniques

[Prepared on the basis of NBRI reporting. The technique has been taken from HPL and others working in Homoeopathic Drugs.]

3.1 The Herbarium—Its role in Botanical research.

Herbarium as redefined can be static, serving as depositories of historical collections and that offer documentation, supplement the limits of direct observation and serve as an aid in plant identification. However, unless herbaria assume a dynamic role in ongoing research they are, in most cases, bound to stagnate. This dynamic role will, to a large extent, depend on the type of herbarium as well as on the scientific thrust of the institution of which it forms a part.

Herbaria can be grouped under four categories :—

- (a) International—with a world wide taxonomic coverage.
- (b) National—covering the vegetation within national boundaries, as also pertinent elements from neighbouring areas.
- (c) Regional—reflecting the vegetation of well-defined region, and
- (d) Specialised—representing particular groups or types of plants.

The staff of the Herbarium and Taxonomy Division should have its own well-planned programme in floristics, taxonomy and plant introduction with an emphasis on non-agricultural economic and ornamental plants. As far as possible, it would be good to avoid duplication with others in net of co-operation or in vicinity.

The staff of the Herbarium should be closely involved with the other departments offering information and plant material and securing voucher

specimens for the material studied in the palynological, anatomical, ethnobotanical and tissue culture laboratories.

Taxonomic judgement on the data presented by the different laboratories should normally fall within the purview of the scientific staff attached to the Herbarium.

Briefly, to find worthwhile plants and to understand and improve them, identify and name them, preserve them and thus make them available to the community of botanical scientists is the role of the Herbarium and its staff. This is a basis and indispensable service to modern botanical research.

3.2 Plant Collection—aims and methods in Modern Botany—

Scientific plant collection aims at transferring the transient and often inaccessible reality of the plant world to the relative stability of the herbarium and garden. In the process of this sampling, as much of the objective reality as possible has to be conveyed.

Field work should be realistic in its approach, trying to know what grows, where it grows and how and why it grows. It even endeavours to trace the lines of plant migration and evolution.

For successful work, the area under study should be well defined, its topography and climate studied and its soil types indentified. The entire vegetation has to be carefully examined and collected during all seasons, in the different ecological niches.

Methods of collection can vary, depending on the particular objective of the collector. Living material should be trimmed and despatched for planting as quickly as possible. A field microscope may help in selecting and fixing materials for mitotic studies. Viable seeds, with proper field members, can facilitate mitotic studies of complexes. In case, the material is needed for palynological studies, it might be better to collect extra flowers rather than remove them from herbarium specimens.

Specimens meant for the herbarium should be as complete as possible. Radford (*Vascular Plant Systematics* : pp. 390 ff.) gives an interesting table showing what is needed for the indentification of different families. The traditional dry method of pressing plants is still followed by many in India. The wet method of pressing plants is followed by

many in India. The wet method of field pressing, using a 4-6% aqueous solution of Formalin, has been found practical and time saving. Aquatic plants may have to be pressed by floating. Mucilagenous marine algae are easier to handle between linen separators. It might prove useful to have pad of blotting papers for delicate flowers and tiny herbs which would otherwise get damaged in a larger press.

Proper field notes, reflecting the reality of the plant and its environment, add immensely to the value of specimen. Special field books, incorporating suggestions for a holistic approach, have been evolved and can ensure observations that may otherwise be over-looked. An altimeter, anemometer and field pH meters are useful instruments. Colour and black and white photography can record many a detail that would normally be lost.

What is needed, above all, is a band of daring plant collectors, ready to face the hazards of mountain and the river, the wind and the rain, the dense forest and the exposed scrub. The scientist has at the same time to be capable of keen observation, critical laboratory work & lucid expression. The purposes may vary, the methods may change, but, it is prudent enthusiasm that will lead to success.

3.3 Herbarium Methodology.....

The herbarium attempts at making the reality of the plant world easily available to the botanist. Good specimens, well preserved and easily located are a valuable source material for botanical investigation.

As specimens, collected in the field, start coming in, they should be carefully spread and quickly dried. Poisoning in the field itself helps in preventing insect and fungal infections as well as abscission layer formation. Drying by convectional current using aluminium corrugates, is recommended where mercuric chloride is not used. Low and steady heat with proper ventilation gives the best results (cf. Fosberg & Sachet, *Manual for Tropical Herbaria*, Tillet, Taxon, 26:443-56, 1977).

Mounting board of required thickness, with high rag content, are more durable, of the three inter-

national sizes, the common wealth size 10.5×16.5 inches (26.5×42 cm) seems to be convenient in India. Method of gluing, stitching (cf. Croat. Taxon, 27:103-16 and Hicks et al., Taxon, 27:63-99, 1978), and polymer fixing are discussed by several authors. Labels should be legible and durable and should give as much field information as possible. A map on the label does help.

The organisation of the integration and mounting sections should be such that there is the least possible interval between receiving a specimen and its availability in the herbarium.

Arrangement of specimens is either according to a particular system of classification or by alphabetical sequence of families. In Kew, some genera specimens have been rearranged according to outstanding monographs, e.g. Myristica. As regards herbarium cabinets, proper preservation, easy handling and possibilities of curation should determine the choice of a particular type.

Sterile entry, humidity and temperature control, regular pest control measures, etc. are some of the basic aspects of curation. Croat has surveyed the various possibilities. Extra care is needed in non-acclimatised herbaria situated in or close to gardens.

The value of herbarium increases with facilities for easy retrieval, both of specimens and information. Regional folders, card indices and computerised point-cuts are being used. Planning and vision, linked to practical considerations, should once again determine the right approach. The bigger the herbaria, the more difficult is to introduce innovations.

The herbarium is, above all, a place of study. A library with specialised literature, sufficient working space, proper microscopes, fire-proof heating sources and the service of typists and artists constitute the infra-structure for efficient work. Leenhouts (A guide to Practical Herbarium Taxonomy) has briefly indicated how a herbarium can be a useful means of knowing plants and of making them known, used and appreciated by others.

The series of lectures abstracted above was delivered by Prof. C.J. Saldana, Director Centre for

Taxonomic Studies, St. Joseph's College, Bangalore, at the NBRI.

The material given above is based on the following:—

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4. Pulsatilla Research

The Experimental work on *Pulsatilla* and *Caulophyllum* has been referred to in the previous issues of the *Quarterly Bulletin*. The research work has been continued. Abstracts of research papers already communicated for publication or being read in scientific seminars/congresses are given hereafter.

The research work on *Pulsatilla* and *Caulophyllum* has attracted attention of scientists in India as well as abroad, especially Holland.

4.1 Effect of Pulsatilla (a Homoeopathic drug) 1000 & 10,000 potencies on ovaries, uterii and arcuate neurons of rats.

K. Chandrasekhar and Saraswati H. Velicheti.

(Communicated to Journal of Fertility and sterility)

This study was designed to fathom the effect of pulsatilla (a Homoeopathic drug) in its 1000 and 10,000 potencies on the ovaries, the uterii and arcuate neurons of albino rats. The drug and vehicle (90% alcohol) were fed orally during preoestrus and estrus and their effects assessed after days 1 and 5 of drug administration. It was found that pulsatilla in the 1000 potency decreased ovarian as well as uterine weights in rats fed during preoestrus. A histological examination showed that it increased the number of atretic follicles and reduced the diameter of corpora lutea. The drug also reduced the height of luminal epithelium and mitotic divisions in the luminal cells. All the same, mitotic divisions in stromal cells increased. The drug given at preoestrus reduced the nuclear volume of arcuate neurons. Thus, the ovarian and uterine changes are indicative of the drugs progres-