

## ***The Wealth of India* – a CSIR's encyclopaedia of information resource on economic plants, animals and minerals**

Onkar J. Chakre

*'The Wealth of India' is an internationally acclaimed encyclopaedic publication comprising, in monographic, articles on economic plants, animals and mineral resources of the country. The encyclopaedia is a continuation of George Watt's 'Dictionary of Economic Products of India'. The volumes of 'The Wealth of India' and their supplements brought out in two series – Raw Materials and Industrial Products – provide a critical compendium of knowledge in the related fields and have proved to be the richest and most authentic source material for information on natural resources of India.*

After the World War I, phenomenal advancement of scientific research and systematic studies was responsible for the accumulation of scientific information and knowledge about the natural resources of India that was scattered in various research institutions and university departments. India is extremely rich in biodiversity (both wild and cultivated) with a varied climate. The Europeans, who originally came to India as traders in the 17th century, began to take great interest in the flora of India, particularly in plants of economic importance. They were mainly concerned with the agricultural and economic produce of India.

George Watt (Figure 1), the creator of a monumental 'Dictionary of Economic Products of India' under the British rule, was born in 1851 in Old Meldrum Aberdeenshire in Scotland. At the age of 22 he qualified in medicine at the University of Glasgow, Scotland<sup>1</sup>. He was presented with an honorary doctor of laws degree

from Glasgow. He was recruited to teach botany in the Presidency College, Calcutta (Kolkata), West Bengal in 1873. He had unwittingly stepped into an on-going dispute between two groups – one faction favoured the teaching of botany as a separate discipline. Though employed as a surgeon, he assiduously took to studying and collecting economic plants through field work<sup>2</sup>. Ten years later, he received official sanction for his hobby, when the Bengal Government had asked him to organize an exhibition of economic plants of India at Calcutta similar to the Paris exhibition of 1880 and the Melbourne exhibition of 1883. The exhibition was a great success and soon after the Government of India opened a permanent museum of all the economic products of the country. In 1894 he published a *Memorandum on the Resources of British India*. He undertook a major study of diseases and insects damaging the plantations and in 1898 published a major report of his findings<sup>1</sup>. In 1874 Watt was elected to the prestigious Linnaean Society of London and within three years of arriving in India he published his first book *First Step in Botany: Being an Introductory Treatise on the Vegetation of Bengal* in Bengali language. His second book, *Lessons in Elementary Botany for General Readers* had 100 illustrations. He published his first book at the age of 25.

Watt spent the next 25 years of his life on this task and published six volumes of *Dictionary of Economic Products of India* (1889–1893) and *Commercial Products of India* in 1908 – a landmark work in the study of economic plants of India, followed by an index in 1896 (ref. 3). For this work he consulted nearly 400 published works including his notes, personal observations, inputs from about

300 European and Indian specialists working in various Government departments. In 1888 he discovered a species of rose *Rosa macrocarpa* in Manipur, India and during 1892–1903 he edited the Indian journal *Agricultural Ledger*. In the last decade of 19th century Watt made further contributions to economic botany. During one of the trips he discovered a new species of tree rhododendron, *Rhododendron macabeanum*, in northern India<sup>1</sup>.

It is learnt that Watt came in contact with the famous English nurse and social activist Florence Nightingale in mid-1880s (ref. 1). Apparently, she was interested in Botany and accompanied Watt on several botanical excursions. Moreover, she even tried to help him by arranging meetings with prospective publishers in London<sup>1</sup>.

In 1901 Watt was appointed Secretary of the Indigenous Drugs Committee of the Indian Government and drafted an important report for that committee<sup>1</sup>. He also became the director of a major exhibition of Indian arts and crafts which was held in Delhi in 1902 and 1903. The catalogue of the exhibition was published in 1903 as *Indian Art at Delhi*<sup>1</sup>.

Watt will be remembered for his enormous collection of over 20,000 plant specimens collected during his work in India. These specimens are now available in Indian herbaria and will continue to serve the needs of those working on plants in diverse cultures of the Indian subcontinent. Thousands of medicinal plants are still in use in traditional medicines<sup>1</sup>.

S. S. Bhatnagar, the founder and the first Director General of the Council of Scientific and Industrial Research (CSIR) and Lala Ram, the well-known industrialist whose deep concern, foresight and



**Figure 1.** George Watt (1851–1930). Photo courtesy by David Galbraith.

## HISTORIAL NOTES

interest in the natural wealth of India, inspired them to take up the revision and expansion of Watt's Dictionary. The new work was named as *The Wealth of India* and was undertaken in 1942 by the National Institute of Science Communication and Information Resources (NISCAIR), then Publication and Information Directorate (PID).

### *The Wealth of India – Raw Materials: Original Series*

The original edition of *The Wealth of India* has been brought out in two series, one is *Raw Materials* in eleven volumes (1948–1976) and two Supplements – *Fish & Fisheries* (Vol. IV) and *Livestock* including poultry (Vol. VI)<sup>4</sup>. The other is *Industrial Products* in nine parts. Both the series were published simultaneously in 1976. The raw material series contains c. 5000 plant species, c. 50 topics on animals and animal products and 75 entries on economic minerals found in India. The *Raw Materials* series was further revised and updated with three volumes A, B and Ca–Ci and a *Supplement on Birds*.

While compiling articles for *The Wealth of India*, relevant information from various journals, floras and books, and through personal communication with scientific organizations, was collected. The plant entries are arranged in alphabetical sequence of their generic and species names, whereas the mineral and animal products are given under their English names with their scientific equivalents. The coverage spans the habit, distribution, various regional names, cross references, vernacular names, active principles, chemical products, breeding, cultivation, area and production, application of manures and fertilizers, diseases and pests and their control measures, sowing, transplanting, harvesting and storage, chemical composition and utilization, and marketing and trade. Data regarding area and production and export, import are provided for all the major agricultural crops and important medicinal plants. Zoological entries cover the habitats of the animals, geographical areas of their occurrence and distribution, their usefulness and important products. The occurrence and distribution of minerals in the country and their modes of exploitation and utilization are given. An index to botanical

synonyms, cultivars of crop plants, common English names, various regional names, active principles and other important chemical products and trade names facilitating easy access to information are given at the end of each volume. Lists of books and journals cited in the volumes are also given.

*The Wealth of India* publication is highly acclaimed the world over as a standard reference document for information on India's economic resources. The complete set of 23 (Figure 2) volumes is a treasure house of knowledge and natural raw material an information seeker would be proud to own. When the first volume of *The Wealth of India – Raw Materials* came out in 1948, the first Prime Minister of India Pandit Jawaharlal Nehru wrote in the Preface: 'I have found this particular dictionary fascinating and it has opened out vistas of thought for me. I have no doubt that this book produced by mainly scholars and experts and after much labour, will be of great value to the builders of new India. It should be of value in educating the average citizen, who should take interest in this fascinating land and its enormous potentialities.'

### *Asian Health Environment and Allied Databases*

The encyclopaedia, after conclusion of the original series with three supplement volumes, was diverted to electronic publishing through the project AHEAD (Asian Health Environment and Allied Databases) sponsored by the International Development Research Centre, Canada. CD-ROM *Wealth Asia* (D 2.1) released under this project includes full-text database of *The Wealth of India* series; D 2.2 and D 2.3 followed with updates in all entries (A–Z) for an 8-year



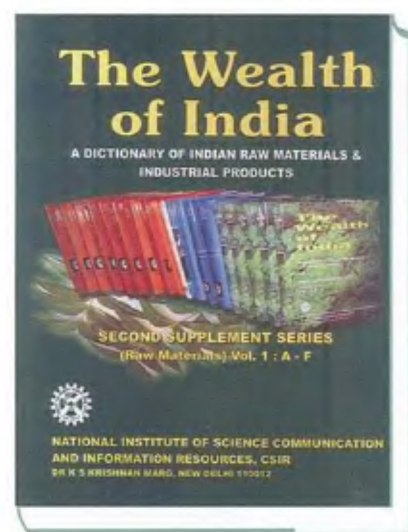
**Figure 2.** The original series of *The Wealth of India – Raw Materials*.

updating period (1987–1994) spacing c. 5000 entries from A to Z on plants, animals and minerals. Because CDs are not a substitute for the volumes, and are not operative any more, *The Wealth of India – Raw Materials* publications should be revised and continued with the growing years in print.

### *The Wealth of India – Supplement Series*

Since the users' demand of *The Wealth of India* within the country clamoured for the volumes in the print medium is more and hence First Supplements Series to *The Wealth of India – Raw Materials* was published in 2000, updated information on plants, animals and minerals covering A–Z for a seven-year period (1987 to 1994) and completed in 2004 in five volumes<sup>4</sup>. To maintain the style and format of the parent series efforts have been made to give a cohesive presentation to blend with the original series. The publication of this series has significant potential in the light of the present global trend to go herbal and look for alternate plant-based system of medicine.

The Second Supplement Series (Figure 3) was brought out in three volumes (completed in 2009). In this last and final volume over 2000 plant species belonging to more than 1000 genera have been described. Of these, 11 new genera and more than 150 new species reported for the first time and are new to original as



**Figure 3.** Vol. 1 of Second Supplement Series of *Wealth of India*.

well as both the supplement series of *The Wealth of India* volumes. Detailed information on top priority areas such as conservation and utilization of natural resources and its management, transgenic crops, bio-fuels, biodiversity and intellectual property rights, bio-piracy, alternative therapies, wild relatives of plants, conservation status of species and tools for habitat monitoring, waste management, rural economic development, environment and eco-tourism, employment, etc. are also given. Besides, there is an index and an appendix of the glossary of medicinal terms.

James A. Duke of USDA had written in the letter to the Editor, *The Wealth of India*: 'I have two treasured sets of first 11 volumes, one at office and one at home'. Proper utilization and conservation of natural resources in the country has become an economic necessity, today. However, *The Wealth of India – Raw Materials* series is a ready reckoner for researchers, entrepreneurs, plant-based industrialists, policy makers and

planners, progressive farmers, naturalists, environmentalists, etc. as an authentic reference work<sup>5</sup>. It has been recognized as a basic information resource on Indian raw materials and is reflected by publishing several books and monographs such as *Compendium of Indian Medicinal Plants*, *Treatise on Indian Medicinal Plants*, *Medicinal Plants of India* by ICMR, *Glossary of Indian Medicinal Plants – Second Supplement*, *The Useful Plants of India*, *Plants Food and Flavours*, *Plants for Reclamation of Wastelands* and *Dictionary of the Flowering Plants of India*. The completed series will be a useful reference for all the libraries, universities, institutes and scientific organizations, and an indispensable source for specialists on subject matter related to raw materials and industrial products of India and indeed to many tropical and sub-tropical regions.

1. David Galbraith, *The Gardens*, 2004, **1**, 1–7.

2. Chakravarty, R. S., *Econ. Bot.*, 1975, **29**, 31–38.
3. Watt, G. (ed.), *A Dictionary of the Economic Products of India*, Superintendent, Printing, Government of India, Calcutta, 6 vols (1889–1893); Index 1896; reprinted Cosmo Publications, Delhi, 1972.
4. *The Wealth of India – Raw Materials*, vols I–XI (1948–76) and vols 1–3 revised series (1985–92), revised volumes suppl. series I and II (2000–2009), vols 3 and 5, Council of Scientific and Industrial Research, New Delhi, 1976 and 1992.
5. Ramachandran, K., *Proc. Indian Natl. Sci. Acad.*, 1997, **B63**, 139–150.

ACKNOWLEDGEMENT. I thank Dr Gangan Prathap, Director NISCAIR, CSIR, New Delhi for his valuable suggestions.

---

*Onkar J. Chakre is in the Wealth of India Division, National Institute of Science Communication and Information Resources (NISCAIR), CSIR, 14 S. V. Marg, New Delhi 110 067, India.  
e-mail: oj@niscair.res.in*

---