Pharmaceutical Industry in India

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THE foundations of the modern pharmaceutical industry in India were laid towards the end of the 19th century. World wars inevitably gave a fillip to this industry and between the two world wars, the Indian pharmaceutical industry made a remarkable progress. Before the II world war, large quantities of medicines had to be imported and India's requirements of medicines alone were worth about 5 crores of rupees per annum. It was, therefore, essential to exploit our own indigenous resources and efforts in these directions have been very largely successful.

Our present position: In 1939, India produced only about 13% of her medical requirements. The development of drugs and pharmaceuticals industry has been retarded due to inadequate spplies of basic chemicals and India had to take recourse to bulk imports of proprietary tonics, injections, tablets, etc. This state of affairs was entirely changed by 1943, when India was in a position to meet nearly 70% of her total demands. During this period, large quantities of alkaloids—emetine, strychnine, caffeine, morphine, etc. of excellent qualities were manufactured. The shark liver oil industry was an achievement of this time and India can now afford to export a part of her produce. In the field of vaccines and sera, India was self-sufficient and could supply them to the Allies during the war. The glasswares for pharmaceutical solutions are now supplied by the indigenous industry. A substantial progress in the manufacture of biological products like liver extract, protein hydrolysates, etc. has also been achieved.

The industry can be broadly classified into the following sections : those manufacturing (i) galenicals—proprietary tonics, tablets, injections, etc., (ii) alkaloids, (iii) biological and glandular products, (iv) fermentation products, (v) inorganic drugs, (vi) chemotherapeutic drugs and (vii) antibiotics.

(i) *Galenicals:* India is well placed in respect of natural drugs of vegetable origin as most of the raw materials are abundantly available. The rectified spirits used in the extracts, tinctures, etc. are also available in plenty. The production capacity has increased from 7,50,000 gallons in 1949 to 11,88,580 gallons per annum. India also produces enough cough remedies, poultics, antacid products, tonics, hæmatinic preparations, vitamin-containing products, enzyme preparations, etc. As regards parenteral preparations—glucose, normal saline, distilled water, calcium gluconate, quinine hydrochloride, vitamins, liver extracts, etc., India is self-sufficient, the manufacturing capacity reaching about 109 million ampoules.

(ii) *Alkaloids:* Quinine, opium alkaloids, strychnine, etc. were produced in India even in the pre-war days. Ephedrine, caffiene and atropine are of recent manufacture. At present, India produces more than 75% of the alkaloids mentioned in the British Pharmacopœia from indigenous plants. Some of these alkaloids are finding a good export market. A scientific method for cultivation of plants and for alkaloid production will go a long way in improving upon the present methods.

(iii) *Biological and glandular products:* Manufacture of vaccines and

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sera was first started in India in 1919 and since then has made a good progress. At present vaccines, sera, antitoxins and bacteriophages are produced by several private enterprises as well as government institutions. The total production capacity is of the order of 156 million c.c. per annum.

Liquor adrenaline, posterior pituitary extracts, etc. are also manufactured in enough quantities. On the other hand, manufacture of insulin on a commercial scale has not been successful owing to difficulties in collection and storage of glands from the slaughter houses.

Shark liver oil is used as a substitute for codliver oil in India for vitamin A requirements, because sharks are plenty in Indian waters. It is manufactured both privately and by Government Fisheries Departments, the total production capacity being 5,50,000 million I.U per annum.

Manufacture of liver extracts in India is a post-war attempt. Large quantities had to be imported in pre-war days for the treatment of anæmia. Indian industry has made a quick progress in the manufacture of liver extracts ; the annual production capacity of oral extracts is 1.4 million lb. and that of injectible extracts 23.8 million c.c.

(iv) *Fermentation products:* This industry could not make substantial progress due to non-uniform excise duties, high transporation charges, prohibition, etc.

(v) *Inorganic drugs:* The Indian pharmaceutical industry meets almost all the requirements of inorganic medicinal chemicals such as salts of magnesium, sodium, potassium, iron, etc.

(vi) *Chemotherapeutic drugs:* These drugs require basic chemicals from coal-tar products as their raw material. However, in this country basic chemical and engineering industry is still in the developmental stages. A few products such as organo-arsenicals, quinoline compounds, certain sulpha drugs, etc. are produced on a small scale from the imported raw materials. Others, like antimalarials, analgesics, sulpha drugs, sedatives, hypnotics, anæsthetics, etc. have been tried on an experimental scale.

(vii) *Antibiotics:* This branch of the pharmaceutical industry is still in the infant stage. The Government of India have established a penicillin plant in the Bombay State in co'laboration with WHO and the UNICEF. The plant will be shortly going into production. A private firm in Calcutta is finishing its pilot plant study to go in for penicillin manufacture.

Our difficulties:

In India, the basic chemical and engineering industry, the backbone of pharmaceutical industry is still in the incipient stage. A lack of indigenous basic chemicals, intermediates, solvents and engineering equipments has been one of the unfavourable elements in the way of Indian manufacturer.

A number of trade difficulties have been great handicaps for the indigenous manufacturer. Unfavourable import duties, diverse excise policies, prohibition are some of these. The procedure of levying duty on alcohol used in the intermediate synthesis of a drug where the final product is non-alcoholic makes the production costs of a preparation high. These are reflected in the lower standard of packing, labelling, etc. and gives little chance to indigenous manufacturer to operate on any margin.

It may also be mentioned that there is a lack of close co-operation among the members of pharmaceutical industry and members of medical profession re-

sulting in a slow down in the development of the industry. A fair trial should be given to the indigenous products in clinical fields. The tendency among the medical profession to look down upon genuine indigenous products should be discouraged. The manufacturer also should be compelled to leave the unhealthy tendency of putting inferior or substandard products on the market.

To build up an industry for the production of drugs requires a large finance, big organisation and considerable amount of coordinated research. Most of our pharmaceutical concerns are too small and too young to take up this responsibility individually. It is therefore to be welcomed that the Government of India have appointed a Pharmaceutical Enquiry Committee to advise the Government in right directions.

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