

THE WORK
OF THE
IMPERIAL INSTITUTE.

AN ADDRESS

DELIVERED AT THE IMPERIAL INSTITUTE

BY

THE RIGHT HONORABLE

THE LORD HERSCHELL, G.C.B., D.C.L., F.R.S.,

(Chairman of the Governing Body),

HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G.,

PRESIDENT,

IN THE CHAIR,

ON DECEMBER 16TH, 1895.

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H.R.H. the PRINCE OF WALES presided over a meeting which was held in the East Conference Hall of the Imperial Institute, on Monday afternoon, December 16th, 1895, when an address on "The Progress of the Work of the Imperial Institute" was delivered by Lord Herschell, Chairman of the Governing Body. His Royal Highness was accompanied by Prince Nicholas of Greece, and attended by Commander the Hon. S. Fortescue. Among others present were the Duke of Fife, the Marquis of Lorne, M.P., Lord George Hamilton, M.P. (Secretary of State for India), Lord Playfair, Lord Thring, Field-Marshal Sir Lintorn Simmons, Sir Lowthian Bell, Sir Daniel Cooper, Sir Robert Herbert (Agent-General for Tasmania), Mr. Walter Peace (Agent-General for Natal), Sir George Bowen, Rt. Hon. W. Lidderdale, Sir Saul Samuel (Agent-General for New South Wales), Sir Rawson Rawson, Sir Owen Tudor Burne, The Governor of the Bank of England, Sir Alexander Wilson, Prof. Henry Armstrong, Sir Frederick Abel, Sir Somers Vine, Mr. H. C. Beeton, Mr. Bhownaggee, M.P., Mr. C. Washington Eves, Mr. John Hollams, Mr. H. J. Jourdain, Mr. Thomas Skinner, Mr. W. H. Willans (Chairman of the Council of the London Chamber of Commerce), and between five and six hundred ladies and gentlemen.

Lord HERSCHELL, who on rising to deliver his address was greeted with applause, said :—

YOUR ROYAL HIGHNESS, my LORDS, LADIES, and GENTLEMEN :—Few questions have been more frequently addressed to me during the last two years than this : "What is the Imperial Institute—what is the use of it?" I have found almost invariably the conception of those who put the question to be, that the Imperial Institute was an agreeable lounge, where good music might from time to time be heard, and where a large number of prosaic and uninteresting objects had been gathered

together for the inspection of anyone who cared to look at them. Whether they regarded the Institute as having any higher aim, I know not; they certainly were under the impression that it had accomplished nothing more. Nor has this conception of the Imperial Institute been confined to the casual visitor. It found expression the other day in one of our Colonial Legislatures when a grant for the maintenance of the department of that Colony in this building was proposed. And to come nearer home, a member of our own House of Commons last session suggested that this building was now applied to purposes worse than useless, and that the best course for us to take was to hand it over to the authorities of the London County Council for a totally different object.

It has, therefore, become necessary to bring before the public the work which the Imperial Institute has been doing during the last three years, and to remove, if possible, by making known the facts, such misapprehensions as those to which I have referred. It is always unpleasant to blow one's own trumpet. It is scarcely less so to perform the operation in the case of an Institution with which one has been closely connected. But wholesome as it undoubtedly is to bear constantly in mind that there is a time to be silent, it is necessary to remember that there is also a time to speak, and in the present case I think that time has now come.

I cannot better introduce the subject on which I have to address you than by recalling the main outlines of the scheme which was presented to the public by the Committee appointed by H.R.H. the Prince of Wales, to suggest the form which a memorial of Her Majesty's jubilee should take. The proposals then made were received with general approval, though I admit that even at that time some were sceptical whether any work of practical utility would be achieved. I purpose asking you to consider how far the aims developed in that scheme have been accomplished.

Early in 1887 the Committee to which I have referred issued to the public a brief description of the "general objects of the Imperial Institute;" from which the following are extracts:—

"It is contemplated to erect a building worthy of the occa-

sion which it is to commemorate, and to house in this building carefully selected and arranged collections of the natural and manufactured products of the Colonies and of India, side by side with collections of the natural products of the United Kingdom, and every effort will be made continuously to maintain the illustrations of the natural resources of the Empire up to the day.

“The Institute will, through the agency of these collections, of libraries, offices of reference, reading-rooms and facilities for conferences, be a central source of information upon all matters relating to the natural and industrial resources, the trades and handicrafts, and the commerce of every part of the Empire; it will afford facilities to all classes for acquiring practical knowledge regarding known and new materials, and information relating to inventions made and industrial achievements accomplished at home, in the Colonies, and in foreign countries. The manufacturer, the merchant, and the tradesman will be able to obtain through its agency samples of our Colonial and Indian products, with particulars regarding their commercial and natural history.

“The Institute will provide accommodation and arrangements for occasional special exhibitions of Colonial and Indian arts and other produce, and of prominent industries special to different parts of the United Kingdom; also for competitive exhibitions of the actual handicrafts of artisans.

“One of the prominent functions of the Institute will be to afford facilities to intending emigrants for obtaining the fullest information in regard to the Colonies, and to the requirements, essential qualifications and prospects of those who select any particular colony for their future home.”

That the building in which we are assembled is, as the scheme contemplated it should be, worthy of the occasion it was intended to commemorate, few will deny. My purpose to-day is, by a plain statement of facts, to show the extent to which, a little more than three years after the preliminary opening of the Institute, the other objects set forth in the foregoing extracts are in process of accomplishment.

When the Imperial Institute was officially opened by the Queen, on the 10th of May, 1893, much progress had been made with the arrangement, in the galleries of the Institute, of collections illustrating the natural products of India and of the several Colonies included in the British Empire; since that date, additions have been, from time to time, made to these collections, so that the natural resources of all the chief Colonies and of many of the smaller dependencies of the Empire, may now be considered as being, generally, well represented by the collections of the Imperial Institute.

The Indian Section, more especially, affords a comprehensive representation of the Indian Empire's wealth in natural products, each class of these being represented not only by specimens of the several varieties which it includes, but also by representative specimens as furnished by different Provinces and Districts of India, and by examples showing, wherever possible, the special applications of particular products to the various arts and manufactures.

The following classes are embraced in the collection, viz. :—

Food stuffs.	Dyes and Tans.
Stimulants and Narcotics.	Fibres.
Oilseeds, Oils, and Perfumery.	Hides, Leather, etc.
Medicines and Drugs.	Canes and Grasses.
Gums and Resins.	Timbers.
	Minerals.

Fresh additions to the collections are from time to time received from the Agriculture and Revenue Department of the Indian Government. These consist either of specimens to replace others which may have deteriorated by age; of specimens of products from districts not hitherto represented, or of samples of new or little known materials, which need chemical investigation, and examination by practical experts. Of such products larger samples are sent, and indeed, provision is made for the supply, to merchants and others, of specimens of such materials represented in the exhibited index collections, as may be required for trade- or experimental purposes.

The collection consists at present of over 7000 specimens, admirably arranged upon the general lines of a system laid down in a very valuable "Dictionary of the Economic Products of India," prepared by Dr. George Watt, C.I.E., and published by the Indian Government.

The Indian Section also includes extensive representations of the art industries of the country. The collection of textile fabrics is thoroughly representative of textile industry in India ; and the examples of Indian art pottery are numerous and good. Art metal work of native manufacture is also very well represented ; the examples include a unique collection of Nepaul metal work, lent by Sir Edward Durand, and some interesting specimens, together with an excellent collection of peasant jewellery, lent by Colonel Rivett-Carnac.

Numerous inquiries have been made in the Indian Section by commercial men and others desirous of obtaining information relating to some of the specimens exhibited, or concerning products of which they have heard and of which they would like to obtain samples. In several instances, manufacturers have come from a distance in search of new or cheaper materials adapted for use in their respective branches of industry ; in all these cases the information sought for has either been given at once, or, where necessary, the Revenue and Agricultural Department of the Government of India has been asked to assist the inquirer.

Among inquiries which seem likely to lead to enlarged commercial relations with India, the following may be quoted, viz. :—

A London firm, wishing to import *Mica* direct from India, if it could be done with advantage, was allowed to thoroughly examine the samples in the collection ; export prices were furnished to him, and as these appeared satisfactory, the firm has been placed in correspondence with an Indian house which supplies the mineral.

Another London firm, impressed with the qualities of one of the exhibited samples of *India-rubber*, wishes to procure a trial-consignment of ten tons. Inquiries are now being made in India on the subject.

A representative of a German firm desires a sample of a few hundredweight, for spinning trials, of the *Sida fibre* exhibited ;

a supply has been promised from India, and if the experiments are successful, large orders will be given.

A manufacturer is anxious to find *new materials for braidings for hat-making*, and has selected several Indian fibres and leaves which he thinks might suit him. Further samples are being sent from India for him to select from, and he is prepared to give large orders for those which are best adapted to his work.

Several firms are inquiring for *Mahua and Kokam "butters,"* and similar fixed edible oils, for which there is now a very considerable demand for margarine making: samples are on their way from India, and the whole question of the properties and value of the various edible oils of India is about to be investigated.

A well-known chemist, Dr. Max Lehmann, of Wittenburg, having discovered a new blue colouring matter in the seeds of *Entada scandens*, desired to examine some of these seeds exhibited in the Indian Section, in order to ascertain whether they contained the same colouring matter as found in seeds from other localities. The subject is under investigation, and a fresh supply of the seed has been received for Dr. Lehmann.

Dr. Schunck, F.R.S., of Manchester, well known for his important researches on vegetable dye-stuffs, has requested to be furnished with a sample of *Datisca cannabina*, which is now being obtained for him from India.

The Indian collection contains a sample of *Eucalyptus oil* distilled at Ootacamund, Nilghiris, by the Government of Madras, which has attracted the notice of several merchants who were unaware that such an oil was prepared in India. Messrs. Allen and Hanbury, and Messrs. S. Figgis & Co. have examined specimens, and reported very favourably as to its quality. The Government of India has been informed of this, and attention was directed, at the same time, to the dark colour of the sample received, due probably to want of care in its preparation, which would be likely to affect the market-value of the oil prejudicially.

A shrub called *Adhatoda vasica* (belonging to the order *Acanthaceæ*), which occurs more or less plentifully throughout India, has been there found to possess valuable properties as an antiseptic and insecticide. Dr. G. Watt first noticed the employment of its leaves upon the land of recently-flooded fields

under preparation for rice crops in the valley of the Sutlej, for the purpose of preventing the germination of the lower forms of vegetable growth. The value of a fresh infusion of the green leaves in protecting tea plantations from the "mosquito-blight" and other insect-pests, has been demonstrated, and is being made the subject of more extensive trial by tea-planters in India. The nature of the constituent of the leaves, to which they owe this virtue, was made the subject of some experiments by Mr. Hooper (member of the Pharmaceutical Society of Great Britain), who believes that he has traced them to the existence, in the aqueous extract of the leaf, of a crystallisable alkaloid. At the suggestion of Dr. Lauder Brunton, F.R.S. (a member of the Scientific Consultative Committee of the Imperial Institute), Professor Giacosa, of the University of Turin, was supplied with samples of dried leaves of the *Adhatoda* shrub from the Indian collection, with a view to their therapeutic properties being investigated, but in his experiments he failed to obtain from the leaves any description of alkaloid, as spoken of by Mr. Hooper, while, on the other hand, he found them to be rich in potassium-nitrate (saltpetre). It is possible that the active principle in the fresh leaves undergoes change when the latter are dried, and it may be mentioned, as bearing upon this suggestion, that the active properties of leaves have been found by Mr. Bamber, of Kirkee, to change rapidly when they are soaked for some hours in water, and when the aqueous extract is kept. This interesting and probably important subject is now under further investigation.

The foregoing illustrations suffice to indicate one important direction in which the collections of the Indian Section are becoming of practical value.

The collections contributed by the *Colonies*, of which all but one or two of the smaller are represented by many thousands of specimens at the Institute, present great interest to the merchant, the manufacturer, and the inquiring public, as illustrating the natural products of each country, and the most important materials exported by each. They are, however, in several instances, very far from complete, and are of a more miscellaneous

character than the Indian collection, which is the outcome of systematic and far-reaching operations by a Department of the Government, and is continually receiving additions. A few of the Colonial collections (i.e., those of the Canadian Provinces, New South Wales, and the Cape Colony) received important accessions upon the closing of the Chicago Exhibition; but it is hoped that they, as well as those of several other Colonies, will gradually be rendered more completely representative of the natural resources of those portions of the Empire. In some instances, as in several of the Australasian, the collections include representations of local industrial products manufactured for home consumption; these, although lying outside the scope of the Institute-collections, are of interest as illustrating the state of advancement of home industries in the particular Colonies, and the extent to which the latter are, or are becoming, independent of particular classes of imports. In other instances, as in some of the collections from the Dominion of Canada, ornithological and piscatorial specimens are included (although their exhibition lies outside the precise scope of the Institute), either because they illustrate the staple of important export industries, or else because their display may afford inducements to sportsmen to visit the Colonies where they exist in abundance.

The Galleries, which are open to the public daily, are frequented not merely by casual visitors, from motives of curiosity or from general interest or a desire for the acquisition of knowledge of the resources of the Colonies; many persons who contemplate emigration avail themselves of the privilege of free admission to the collections, with a view to acquire information regarding the particular colony in which they contemplate seeking employment, or settling. Inquiries are frequently made by merchants and manufacturers who visit the Institute, concerning fibres, dyeing or tanning materials, drugs, woods, etc., which are on view in the collections, and they are supplied with information respecting them, and furnished with samples, if desired. The opening up of new sources of trade has thus, on more than one occasion, to the knowledge of the Institute authorities, resulted from the information disseminated through the agency of the collections, and the facilities which these afford for comparing the samples of any one particular product furnished by different countries included in the Empire, are

already much appreciated by English and foreign merchants and manufacturers, and by colonists who visit this country. Inquiries made of the curators of several of the Colonial collections have resulted in the establishment of new business connections ; this is known to have been the case in the New South Wales and some other Australian sections, and in the South African section. A letter written the other day, for example, by the Secretary of a Company which imports grapes from the Cape of Good Hope, stated that they were satisfied with the effect upon the sale of them of the samples exhibited at the Institute. Among other matters, the extensive importation of hardwood blocks for paving purposes from Australian colonies has been much promoted by the exhibition of specimens of this material in the Sections, and from their inspection and trial by metropolitan parochial authorities, at the instance of the Institute. In the Canadian Section, inquiries connected with the exhibits of several provinces are leading to similar results (in connection with wood-pulp for paper-making purposes, compressed fodder, ores and minerals, etc.). But the largest number of inquiries made by visitors to the Canadian courts relate to information required by intending emigrants. Upwards of 1000 applicants of this class have been furnished there with information, and in many cases with introductions and with practical advice, and more than one-tenth of that number appear to have emigrated to Ontario, Manitoba, and British Columbia. The Curator of the Canadian Section, who has recently returned from Canada, has received notice of the despatch of Canadian wine, honey, and canned vegetables, fish, &c., goods now imported from foreign countries, the exhibition of which here may lead to some of the trade at present done with foreigners being transferred to our own Colonial fellow-countrymen.

In the Ceylon Section there are frequent inquiries by businessmen, and in one instance a firm, after having been placed in communication with the Ceylon Government, had a concession granted them for preparing and exporting, on payment of a royalty, an extract of Mangrove Bark for dyeing purposes, which has resulted in opening up a new and profitable business.

Two other working Departments of the Institute which have recently come into active operation are, the Commercial Intelligence Department, and the Department of Scientific and Practical Research, both of which, and the latter especially, are intimately connected with, and serve to enhance the practical value of, the collections of natural products. These collections, both of the Colonies and of India, include many materials concerning the nature, properties and probable commercial value of which there exists as yet but little or no information. It was therefore important to provide an experimental Department at the Institute, where the composition and properties of mineral, vegetable, and animal products could be investigated, and to associate therewith a Consultative Committee composed of eminent specialists in different branches of scientific and applied chemistry, in botany, in pharmacology, and therapeutics, as well as a number of practical experts in important trades and industries, so as to have at the command of the Department facilities for securing reliable results, or information, bearing upon the commercial and industrial value of products, or upon the possibility of utilising these in new directions. These two objects were attained in the course of 1894.

The operations of the Research Department commenced with the issue, to some members of the Consultative Committee, of supplies of certain new products (dye-stuffs, tanning materials, and medicinal products) requisite for the investigation of their nature and properties. Thus, Professors Hummel and Perkin, of the Yorkshire College, Leeds, have been provided with supplies of various Indian dye-stuffs (*Oldenlandia umbellata*, *Rubia sikkimensis*, *Morinda citrifolia*, *Morinda umbellata*, *Myrica Nagi*, etc.), which have been made by those chemists the subject of scientific investigation and of practical examination in regard to their tinctorial properties, the results being communicated to the Indian Government, and published in scientific and industrial journals.

At the suggestion of another member of the Consultative Committee, Professor Armstrong, of the City and Guilds of London Central Technical College, supplies have been obtained through the Indian Government, of several varieties of turpentine from Indian trees, which will be submitted by him to

thorough investigation, one object being to determine which of them can be utilised in India for meeting local demands for oil of turpentine.

Professor Wyndam Dunstan, of the Pharmaceutical Society of Great Britain (also a member of the Consultative Committee), is engaged upon the investigation of the drugs *Aconitum heterophyllum*, *Aconitum ferox*, and *Podophyllum Emodi*, for which purpose the necessary supplies of material have been furnished by the Imperial Institute, and results which promise to be of considerable medicinal importance have already been obtained.*

Mr. Merck, the head of the well-known manufacturers of vegetable alkaloids in Darmstadt, undertook the examination of some samples of Malwa opium furnished from the Indian collection at the Institute, and the results arrived at by him, which were communicated to the Indian Government from the Research Department, led to the issue of a circular from the Agriculture and Revenue Department of India to the Agents throughout the opium-producing provinces, in which Dr. Watt, the Reporter on Economic Products to the Government of India, suggested the carrying out of systematic practical experiments for the purpose of determining the influence of certain variable practices, in connection with the production of opium, upon the proportion of morphia contained in the material as sent into the market, the products of the experiments to be forwarded to the Imperial Institute for comparative examination. Materials obtained in carrying out the instructions included in the circular have already been received and forwarded to the Imperial Institute, and the results of their examination are likely to be of considerable value in connection with the opium trade of India.

The examination of some other medicinal products by Mr. C. Umney, one of the practical experts officially connected with the Research Department, led to suggestions respecting their preparation as bearing upon their quality, which were communicated to the Indian Government.

The manufacture of *Cassie Pomade*, which used to be carried

* Professor Dunstan has also been furnished with a supply of *Chione glabra* from the *Trinidad* Collection, and is engaged upon the investigation of its medicinal properties:

on in India, appears to have been discontinued of late, since the death of a planter at Naini Tal, who used to send supplies to London. Mr. C. Umney reported that this pomade was of excellent quality, being superior to that made at Grasse in France. The attention of the Agriculture and Revenue Department was directed to this by the Institute authorities.

A large number of specimens of essential oils and extracts, prepared at a scent- or flower-farm which has been established by the Government of Victoria at Dunolly, in the north-west of Melbourne, has been sent to the Imperial Institute through the Agent-General for that colony, with a view to their examination and valuation as marketable products, and these are now being dealt with.

Messrs. Deering and Boverton Redwood (members of the Consultative Committee) undertook the technical examination of a series of twenty-three different supplies of castor oil from different districts of India received by the Institute, and furnished a valuable report thereon, which was communicated by the Research Department to the Government of India, who have specially acknowledged its usefulness. The oil-cake from which castor oil has been expressed will be made the subject of special investigation, and supplies thereof have been sent to the Institute by the Government of India for that purpose.

A series of the most important samples of Indian fibres included in the collection has been submitted to practical examination and commercial valuation by Mr. C. E. Collyer, one of the practical experts (for fibres) attached to the Research Department. His report thereon, which was communicated to the Government of India, includes a very favourable opinion on specimens of *Agave* fibre, which he pronounced good for roping, one variety being equal to Manila hemp of average quality. It was suggested to the Indian Government that certain specific inquiries should be made relating to the culture of the *Agave*, preparation of the fibre, etc., in different parts of India, and some supplementary opinions of experts were communicated to the Government, who took steps to institute the inquiries suggested, with the result that information of considerable value to those practically interested in the fibre was collected, and has been widely circulated in a number of the "Agricultural

Ledger," a periodical published by the Department of Agriculture of India.

While the Research Department of the Institute was thus doing useful work in securing the services of eminent investigators ; in supplying them with the materials necessary for carrying out such work as indicated in the foregoing ; in communicating the results to the authorities concerned, and giving them very wide circulation in the Journal of the Institute, steps were taken, with the aid of special funds secured by the Institute Authorities from the Royal Commissioners for the Exhibition of 1851, and from the Goldsmiths' Company, to fit up and equip a commodious Laboratory and an Instrument Room, and to engage the services of a small but well-qualified staff of workers, with a view to the conduct of analytical and other experimental investigations in the Institute itself. The Experimental Department commenced operations in October, 1894, and the work of examination of products included in the collections has been actively proceeded with since then.

An important report has been furnished to the Government of India on the results of analysis of a series of thirty samples of coal from different parts of India, sent for that purpose by the Government, who contemplate an extension of this inquiry.

A series of iron ores from Southern India included in the collections of the Indian Section, and not hitherto examined, are now being submitted to analysis, together with samples of Wootz-steel, obtained from some of these ores.

Some samples of iron ore (of high quality), of limestone, and of iron-oxide paints, received from the Agent-General for New Zealand, have also been analysed and reported upon, and practical trials, secured by the Institute, of the iron paints, have furnished favourable results.

Important work has been carried out in the Research Laboratory in connection with the collections of fibres existing in the Colonial and Indian Sections. The results of the practical examination made by Mr. Collyer, the fibre expert, of eight of the more prominent samples of fibres in the Indian Section, led to the selection therefrom of three varieties of *Sida* fibre included in that series, for chemical examination, in the Research Laboratory, according to a system now in general use for

comparing the practical value of different fibres. The results have been reported to the Indian Government and published in the Journal of the Institute, and arrangements have been made by the Department of Agriculture in India to promote the cultivation of the fibre.

The Consultative Committee having determined that some points of information relating to the collection of *Jute* needed inquiry, the suggestion was submitted to the Government of India that a series of specimens of this fibre, prepared from the plant at different stages of its life, should be transmitted to the Institute, as also specimens treated chemically in various ways before shipment. This suggestion has been acted upon, and a series of samples has consequently been received, the examination of which, in the Research Department and by practical experts, has furnished useful information, and led to the submission of further suggestions to the Government of India, in conformity with which a second series of samples has just been despatched.

A series of the samples of jute fibre included in the Indian collection has also been subjected to chemical examination in the Research Department, and the results obtained, which have been reported and published, were very useful, as demonstrating (*a*) the value of the system of examination as an indication of the quality and commercial value of a fibre, and (*b*) the desirableness of such experiments connected with the cultivation and preparation of jute as have been suggested to the Indian Government. They also confirmed the correctness of the opinion expressed by the fibre expert as regards the commercial value of *Sida* fibre.

The fibre of *Phœnix paludosa* has, at the request of the Department of Revenue and Agriculture, been examined in the Research Department, and by practical experiments, with a view to its possible application to brush-making, but the results arrived at were not favourable.

The Research Department has been engaged for some time past on the chemical examination of specimens of the *tanning materials* included in the Indian collection; the results have shown a considerable variation in the proportion of tannin contained in one and the same product, this variation being

specially noticeable in the case of fruit from *Terminalia Chebula* (*Chebulic myrobalans*), different specimens of which, from Madras, Bengal, the North-West Provinces, and Bombay, furnished percentages of tannin varying from 13·3 to 38·9.

It was pointed out to the Revenue and Agriculture Department of India that these variations, although perhaps ascribable in a measure to special circumstances attending the cultivation of the plant in the different Presidencies, might also be due to variations in the degree of maturity of the fruit, and the desirableness was suggested of furnishing well-authenticated samples to the Research Department, with as full particulars as possible of the conditions under which the plants were grown ; of their age, of the degree of maturity of the fruit, etc. In response to this suggestion, the Reporter on Economic Products to the Government of India has taken steps to deal, during the present year, with three of the most important tanning materials of India, viz., *Terminalia Chebula*, *Acacia arabica* (bark), *Cassia auriculata*, of which specimens are being collected from different districts, fairly representing all variations in climate and soil ; the collections to be made from plants of different ages and at different seasons of the year. The samples thus collected will be transmitted to the Research Department.

A collection of *fibres* grown in the Botanical Gardens, *Melbourne*, and extracted under the supervision of Mr. Guilfoyle, Superintendent of the Gardens, is exhibited in the Victorian Section. A Systematic Examination of these fibres has been undertaken in the Research Laboratory, and the results forwarded to the Government of Victoria and published in the "Imperial Institute Journal."*

The following fibres have already been examined :—

Agave americana.	Kniphofia aurea.
Agave mexicana.	Kniphofia grandiflora.
Agave rigida.	Kniphofia recurvata.
Agave Karotto.	Kniphofia Rooperi.
Agave Rumphii.	Dracæna Draco.
Yucca flexilis.	Plagianthus pulchellus.
Yucca gloriosa.	Lavatera maritima.

* For March, May, July, October, and December ; see pp. 118, 202, 287, 399, and 473.

Sparmannia africana.	Lavatera arborea.
Fourcroya gigantea.	Plagianthus betulinus.
Cordyline australis.	Sida mollis.
Cordyline Baueri.	Yucca aloifolia.
Cordyline Banksii.	Hibiscus mutabilis.
Cordyline Cookii.	Sphoerolcea umbellata.
Cordyline stricta.	Grewia occidentalis.
Cordyline Veitchii.	Sterculia acerifolia.
Abutilon Bedfordianum.	Sterculia diversifolia.

The results of examination of some of these fibres are very satisfactory, and a letter of appreciation of the work has been received from the Government of Victoria.

The *groo groo* fibre (*Acrocomia sclerocarpa*) from *St. Vincent* has been chemically examined with satisfactory results, and application was consequently made to the authorities of the Colony for samples of the fibre, as well as of the leaves which furnish it, with a view of ascertaining whether some ready method could be adopted for facilitating the extraction of the fibre from the leaf. A prolonged "rot-steep" was suggested as a possible means of softening the leaf, and has been tried in the Colony, while the Research Department obtained trials of the effect of some fibre-preparing machines in London upon the leaves; but, up to the present, no really satisfactory result has been obtained.

At the request of the Superintendent of the Royal Botanic Gardens, *Trinidad*, a sample of *Sisal fibre* (*Agave rigida*), grown in those gardens, has been chemically examined in the Research Department, and inspected by the expert on fibres, in comparison with the Bahamas *Sisal fibre*, with the result that it was found to be at least equal in quality to the latter. This was reported to the proper official at *Trinidad*, and the report has been published in the "*Trinidad Government Bulletin of Useful Information*," and in the local journals.

Among the most prominent of the natural products included in the Indian and Colonial collections are the different varieties of *indigenous timber*, which are displayed both in the natural state and in worked forms; in many instances they constitute the materials of which the screens separating the different courts are constructed, while some (as in *Victoria* and *Queensland*) of the show-cases and fittings of the courts have been constructed

of native woods in the Colonies themselves. Some of the courts—e.g., those of British Columbia, New South Wales, New Zealand, Ceylon, British Honduras, British Guiana, and India—contain magnificent slabs or logs of some of their most renowned timbers, and the fine Indian timber Padauk has been applied to the panelling, doors, and fittings of the East Conference Hall of the Institute.

The acquisition of reliable information regarding the physical properties and working qualities of different timbers, by the application of systematic and thoroughly comparative tests to specimens representing the average quality of the wood in a suitably seasoned condition, has long been recognised by engineers and constructors as of great practical value, and the results of examination, by competent authorities, of the timbers of several countries included in the British Empire have been published. Thus, the timbers of Canada and New South Wales, and some of those of India, have been thoroughly examined, but a large number of the woods of other Colonies, included in the Institute collections, had not been submitted to trustworthy mechanical tests before the establishment of the Research Department. The Institute Authorities were so fortunate as to be able to make arrangements for the testing of timbers by means of the complete appliances existing at the adjacent City and Guilds Central Technical College, through the kindness of a member of the Research Department Consultative Committee, Mr. W. Cawthorne Unwin, F.R.S., the Professor of Engineering at that Institute, who himself has undertaken to conduct the experiments and arrange the results for publication.

The authorities of the various Colonies were consequently invited to transmit specimens, of suitable dimensions, and in proper condition to furnish trustworthy practical results; this invitation has been promptly responded to in several instances, and, up to the present time, reports of the results of tests carried out by Professor Unwin with forty different specimens of timbers have been communicated to the Governments concerned, and published in the Institute Journal. The woods already tested have been received from the following countries: Cape Colony (3 kinds), Natal (6), British Guiana (4), Queensland (7), New Zealand (1), Tasmania (3), Montserrat (2), Jamaica (10), St. Vincent (1), India (1). Whenever the specimens give promising

results, and the size of the samples permits, the timbers are submitted to the official expert of the Institute on timbers, Mr. Allan Ransome, with a view to their working qualities being practically tested.

It will be seen, from the foregoing sketch, that the Research Department has, during the first twelve months of its practical existence, accomplished a considerable amount and variety of work, intimately connected with the collections representing the various countries of the Empire, and of more or less immediate and considerable utility to the particular Colonies concerned, and to the Indian Empire, as well as to the industrial and commercial world. The value of the reports furnished has been officially acknowledged by the respective Government and local authorities, and the importance of some of the investigations carried out has been demonstrated by the institution, locally, of experiments, or by the adoption of practical measures, relating to the cultivation, collection, or preparation of particular natural products.

The extension of the *personnel*, accommodation, etc., of the Research Department is obviously a matter of importance, in order that the abundant material for investigation which exists in the collections may be dealt with as expeditiously and completely as possible, and that no difficulty may be experienced in taking up special subjects for report which are sure to be submitted from the Colonies and India, when the existence of the Department and the valuable work which it is performing, become more widely known. Meanwhile, the Institute is prepared to comply with any applications from those sources for scientific and technical advice and assistance, so far as the limits of the resources at the disposal of the Research Department permit.

The work of the *Commercial Intelligence Department*, to which the Research Department stands in intimate relationship, consists, in the first place, in carrying out a well-organised system of collecting information with regard to the resources of the several Colonies and of India; to all details respecting the export and import trade of the United Kingdom, the Colonies, and India; to general commerce and industries, and to the

labour market, not only of the Empire, but also of foreign countries; to shipping, navigation, and land transport, customs-tariffs, postal intelligence, commercial law, and to all other matters bearing upon commerce, industries, Imperial and international commercial relations, emigration and immigration.

The foundation to the Department of Commercial Intelligence was laid by the organisation which was established in 1890 for collecting from all parts of the Empire *official* information to be included in the *Imperial Institute Year-Book* (published first in 1892), which deals statistically with all matters bearing upon the history, physical geography, natural resources, industries, and commerce of every country included in the British Empire. This year-book, which is supplied to Fellows of the Institute at a very low price, and is widely distributed through all parts of the Empire, has become the standard authoritative work of reference on these subjects, and this has to some extent compensated for the very great labour and care, and the considerable outlay, devoted to its production. The latest edition of the year-book is that of 1894, and the Council has decided that its re-publication *in extenso* shall take place only every three or four years, but that a supplement shall be published annually (that for 1895 being the first), which will bring up to date all the authoritative statistical and other information, and will include any additions made to the work.

Communication has been established by the Intelligence Department with well-qualified Corresponding Agents, officially appointed (additions to these being made from time to time), and with other reliable sources of information in the Colonies.

The information collected is carefully arranged, condensed, and classified, so as to be readily available for supply to applicants either verbally or by correspondence, and measures are adopted, and continually extended, for dealing efficiently and expeditiously with applications for special information of all kinds.

The information collected under the foregoing heads has, since January 1st, 1895, been published monthly, in a carefully digested form, in the *Journal of the Imperial Institute*, which is supplied gratuitously to the Fellows and to the chief Govern-

ment Departments, and commercial and industrial bodies and institutions throughout the Empire.

The Journal includes, besides the information and statistics collected by the Commercial Intelligence Department, a variety of data of mercantile value, brought quite up to date ; reports of the work done in the Research Department, and by members of the Research Committee, of the Institute ; abstracts of Chamber of Commerce and Consular reports, monthly retrospects relating to commerce, finance, agriculture, emigration and immigration ; and a variety of other information and news of mercantile and technical interest, besides reports of lectures delivered or papers read and discussed at the Institute, and a continuous record of its proceedings. The circulation of the Journal is over 10,000 copies per month, and they are dispatched by the Institute to all parts of the Empire and to foreign countries. It is gratifying to find that this publication is now widely referred to in the commercial, industrial and official worlds, as a thoroughly reliable and very comprehensive periodical of reference on the matters with which it deals.

It need scarcely be pointed out that the efficient conduct of the Intelligence Department involves not only very careful organisation, but also a very considerable outlay, the expeditious collection of special information from distant countries being often attended by heavy expenses. Although the necessarily small scale upon which its operations have at present to be conducted, owing to the limited resources available at present for this particular branch of work, has precluded the Institute Authorities from taking special steps to give wider publicity to the existence of this Department than is attained by notice in the Imperial Institute Journal, the inquiries for information which it receives are numerous, and continually increasing ; as is also the variety of subjects upon which information is desired and furnished. The extent to which use is already made of it is illustrated by the following list of places within, and outside of, the United Kingdom, whence inquiries have been received :—

Anglesea

Bakewell

Ballahulish

Barnsley

Barrow-in-Furness.

Bedford	Glamorgan
Birkenhead	Glasgow
Birmingham	Gloucester
Blackheath	Great Yarmouth
Bletchingley	
Boscastle	Hastings
Boscombe	Hendon
Bournemouth	Hull
Bowden	
Bridlington	Invergordon
Brighouse	Inverness
Brighton	Isle of Man
Bristol	Isle of Wight
Brixham	
Brockley	Leeds
Bungay	Leicester
	Lewes
Camberley	Littlehampton
Carmarthen	Liverpool
Chester	London (a very large number)
Christchurch	Lowestoft
Coleraine	
Cork	Maidstone
Croydon	Manchester
	Midlothian
Darlington	Mowbray
Derby	
Devizes	Newcastle
Devonport	Northampton
Dublin	North Shields
Dundalk	Nottingham
Durham	
	Orkney Island
Eastbourne	Ormskirk
East Grinstead	Oxford
Edinburgh	
Erith	Pembroke
Exeter	Perth
	Peterboro'
Falmouth	Plymouth
Farnham	Portsmouth

Ramsgate	Suffolk
Reading	Surbiton
Ripley	Swansea
Ripon	
Rochdale	Taunton
Roscommon	Teignmouth
Rugby	Tunbridge Wells
	Twickenham
Sevenoaks	
Southall	Walker-on-Tyne
Southboro'	West Hartlepool
Spalding	Weymouth
St. Albans	Whitewater
St. Austell	Wigtown
Staines	Woking
Stockport	Woolwich
Stranraer	Worcester
<hr/>	
Demerara	Ontario
Manitoba	South Africa
Melbourne	Trinidad
<hr/>	
Belgium	New York
Brazil	
Chili	Philadelphia
	Portland (Oregon)
Finland	
France	Russia
Germany	
	Spain
Italy	Styria

A certain proportion (about 30 per cent. of the whole) of the applications for information are either from intending emigrants, or else their nature indicates that the desired information bears reference to emigration, and to requirements

connected therewith. Others involve the supply of commercial information, e.g., as to import duties, transport, commercial laws and treaties, openings for export trade, while others relate to special branches of trade with particular colonies. Again, others are connected with natural products procurable from the Colonies and India, and relate to details as to nature of material, facility and cost of supply to the British market, etc. These inquiries have, in several instances, been attended, or followed, by the supply of samples, and are known to have resulted, in some cases, in business transactions, while in others they have led to experiments which may be productive of more or less important benefits to commerce and industries. In more than one instance the specially heavy expenses connected with the expeditious supply of the desired information have been promptly defrayed by the inquirer with gratifying acknowledgment of the service rendered by the Institute.

The inquiries bearing upon commercial, industrial, and other subjects, are remarkable in their variety, as is shown by the following selections from the Register of the Department :

Samples of Kokam and Mahua "butters" (vegetable fats) required, with information regarding them.

Names, etc., of properly qualified assayers in New South Wales and Victoria.

Information as to export of butter from Australia and New Zealand.

Particulars as to settlement of property in New Zealand.

As to supply of *Ficus elastica* rubber (order sent to India).

Request for samples of New Zealand flax to be treated as material for coating electric cable.

As to existence of electric lighting plant and electric railways in Ceylon.

Information as to San Domingo from an agricultural and commercial point of view.

As to breeding of silkworms.

Supply, etc., of Banana fibre.

General information about Jamaica.

Concerning the Bahamas as a field for agriculture.

Cost of living, etc., at Trinidad.

Valuation of some Indian embroidery.

- Export of skins from British Guiana.
- As to Commercial Treaties with Canada.
- Information concerning coffee diseases.
- As to sale of various British products in British Columbia.
- Request for identification of a sample of oil-seed.
- As to minerals of Nova Scotia.
- Acreage under tea cultivation in Natal.
- As to supply of Ceylon baskets (samples and prices were obtained).
- As to analysis of Mahua "butter," and for experiments as to removal of its bitter principle (carried out).
- As to prospects of different trades and professions in a number of Colonies.
- Details concerning castor-oil manufacture in Calcutta.
- Sources of Fuller's earth in India.
- As to climate and mineral wealth of the Straits Settlements.
- As to land systems in India.
- Trade of Bombay with Persia.
- Rates of freight on Indian State Railways.
- Rainfall in Singapore.
- Works on coffee planting in India.
- Climate and necessary outfit for Sumatra.
- As to girls' schools in Hong Kong.
- Customs tariffs in South African Colonies.
- Price of sugar in Durban for the last ten years.
- As to narrow-gauge railways in Cape Colony.
- As to soil, climate, and productions of Natal.
- Coffee planting in South Africa.
- Supply of gum copal from Sierra Leone and the Gold Coast.
- Statistics relating to beet sugar cultivation in the various European countries (for an Australian Colony).
- As to improved machinery connected with coffee cultivation (for an Australian Colony).
- As to tobacco cultivation.
- Cost, etc., of Colonial compressed hay.
- Markets for bricks in the Colonies and the Continent.
- As to silk cocoons.
- Duties on woollen goods in the Colonies and foreign countries.
- Duties on books, etc., in the Colonies and foreign countries.
- As to British dealers in bones (from an Australian Colony).

Information regarding chilling processes as applied to meat.

Names of indigo growers in India.

Imports of mica from foreign countries.

Sources of the supply of plumbago.

Names of the firms supplying bamboos for export.

Value, sale, and uses of zirconium.

Laws relating to the sale of patent medicines in Germany.

Information as to value of trimmed mica in India, cost of transport, etc. (this inquiry will probably result in large orders).

East India rosewood samples for trial in connection with cabinet, etc., work.

Names of geographical, historical, and statistical works on Australia.

Australian hard-wood, cost, etc.

As to Ramie fibre, and Oyster Fisheries in Western Australia.

As to cultivation and export of " Copra " in various countries (the information on this head will probably lead to the establishment of important commercial connections).

The quantity of oil of vitriol exported from Great Britain to India, method of packing, rate of freight, insurance, etc.

The duty on dressed and rough leather imported into Sweden and Norway ; as to principal boot and shoe manufacturers there, customs of the trade, etc.

I am glad to say that I hold here in my hand a letter from a firm of high standing, in which grateful thanks are expressed for the valuable assistance afforded by the Commercial Intelligence Department and the ready courtesy of the Institute officials warmly acknowledged (applause). It is satisfactory to be able to state that the information asked for by every enquirer has been furnished. Its supply has in several cases entailed applications to official sources in the Colonies, and in some instances correspondents have been placed in direct communication with public authorities or with mercantile firms and bodies. The value of the Intelligence Department has been recognised by gratifying acknowledgments of the completeness of the information supplied. Among official bodies or authorities who have received information from this Department may be mentioned : the Stores Department of the Indian Government, the German Consul-General, London, the United States Consul, Bristol, the Home and Colonial School Society, the London Chamber of

Commerce, the Royal Gardens, Kew, the Royal Danish Agricultural Society, the British East Africa Company, the International Tract Society, the Indian Tea Association, the Mexican Legation, the Projectors of the proposed Paris Commercial Museum, the Philadelphia Museum, the Church of Scotland Women's Association for Foreign Missions, the Antwerp Commercial Museum, the Agents-General for Victoria, Queensland, and New Zealand.

The applicants have also included a considerable number of prominent commercial firms and companies.

Another direction in which the Institute has done useful work is the dissemination of information relating to the Colonies and India, and to subjects of Imperial importance and interest connected with commerce, technology, natural history, commercial geography, etc., by the delivery of lectures (the majority of them illustrated) and by the reading and discussion of papers. The courses carried out during the past two winter sessions included forty lectures and twenty-four papers, the delivery or reading of which was attended by very satisfactory audiences of Fellows of the Institute and their friends, the attendances amounting to a total of 33,675 persons.

Assistance has also been afforded in the case of a few special applications from societies, educational institutions and local museums, by the loan of maps from the collection of the Institute, and by the presentation of small collections of natural products from different Colonies or from India.

The Conference Rooms devoted to the purposes of the several groups of Colonies, and that provided for India, have been utilised, in conformity with their proposed objects, for the holding of meetings or conferences, and also for social gatherings of Colonists and of Indian Associations. A special apartment is allotted to the Northbrook Society, which is frequented by the natives of India resident in or visiting London, and by Indian officials. Another apartment is allotted to the British Women's Emigration Association, which carries out much and very useful work in connection with female emigration. The Secretary of this Association states that since they have been lodged in the Institute their operations have most wonderfully

increased, and that there is hardly any limit to the value of the influence of the Institute and its advantages in beneficially assisting them with their work.

That the spacious accommodation presented by the main building and halls of the Institute, and the facilities afforded by its system of organisation, render it peculiarly adaptable to the purposes of large Congresses, has been demonstrated by the success attending the meetings, this year, of the International Railway Congress, and of the International Geographical Congress (besides other functions of a social and ceremonial character), in connection with both of which, very interesting and successful special exhibitions were held.

The original scheme of the Institute included the proposal to organise collections representing the natural products of the *United Kingdom*, and also illustrative of the history and development of the chief home industries and manufactures ; but, up to the present time, it has not been practicable thus to utilise the space in the Institute-buildings set apart for these purposes ; it has, however, been applied, in the interests of the United Kingdom and in accordance with the original scheme, to the reception of Exhibitions illustrating the early history and recent developments, at home, and in other parts of the Empire, of the China, Pottery, and Glass Industries ; of the art and industry of Photography in their applications, in Great Britain and other parts of the Empire, to the sciences, arts, and industries ; and, of the most recent developments in Railway Appliances. These Exhibitions proved highly interesting, and were not merely instructive to the public and to those specially interested in these branches of manufacture and industry ; they were also of acknowledged advantage and benefit to many of those who took part in the Exhibitions, as testified to by communications received from exhibitors.

The proposal to hold "occasional special Exhibitions of Colonial and Indian Arts" has been carried into effect by the exhibition of a very interesting loan collection of Indian art-metal-work, and also by the inclusion, in the Pottery and Glass Exhibition, of a collection illustrating the condition of those

industries in different parts of the Indian Empire. Practical effect has also been given to another item in the original scheme, namely, the proposal to afford aid and facilities to existing organisations for technical education and for the practical instruction and examination of artisans, etc., in handicrafts, by affording accommodation, annually, to the City and Guilds of London Institute of Technical Education, for the examination and exhibition of the specimens of work produced in connection with the practical competitive examinations in trades and handicrafts held by that body in all parts of the United Kingdom.

The Library of the Institute now numbers over 10,000 volumes, a very large proportion of which consist of valuable donations from the Governments of the Colonies and India, and from private individuals. About 3500 works deal with geographical, historical, biographical and other subjects of general interest; the remainder are chiefly State- and other publications. The Library is frequently visited by business men and others requiring information respecting the Colonies and India. The News Room is unique of its kind, as it contains the chief newspapers of the United Kingdom, of India, and of the whole of the Colonies. The Map and Chart Room, which is attached to the Commercial Intelligence Department, and is very largely consulted, presents one of the most complete of existing collections of maps of the Empire; it contains about 800 maps, exclusive of the Ordnance Survey, the Admiralty Charts, and the Indian and other Atlases.

I have not attempted to do more than give illustrations of the work which the Imperial Institute is doing; to enter into all its details on such an occasion as the present would be impossible and I think unnecessary. I have surely said enough to show that no inconsiderable amount of work has already been, and is being steadily, accomplished at the Institute which is of direct use, not merely to the Colonies and India, but also to the United Kingdom, and that considerable progress has been made towards the realisation of the objects of the Institute as set forth in the report and recommendations of the Organ-

ising Committee appointed in 1886 by His Royal Highness the President.

We live in an age of impatience. The means of communication are now so instantaneous that men have almost come to take it for granted that time should count for nothing in any human undertaking. Some, then, may possibly think that we might have accomplished even more than we have done, but I do not believe that any unprejudiced persons, remembering the enormous magnitude of the labour involved in getting together the collections here exhibited, in arranging and classifying them, and in organising the many useful departments of the Institute to which I have called attention, will share that opinion. I think, when they bear in mind that we have been little more than three years in occupation of this building, and that the pressure of finance has necessarily limited our staff, they will rather wonder that we have been able to do so much.

If I have succeeded in establishing that work of practical utility has been, and is being, done, have I not also shown that, apart from the fruit it has borne, the Institute has in it the germs of great future usefulness? One of the most urgent demands of the present day is that existing industries should be stimulated and further developed, and that new enterprises should be called into existence. Is not the Imperial Institute working successfully to these ends?

We are but at the beginning of our operations. We are conscious that in many directions further development must greatly increase our power for good. For some of these developments we only await the possession of increased resources.

I admit that our practical and prosaic work has been somewhat overshadowed in the eyes of the public by the opportunities which have been afforded of agreeable entertainment. Some people, as I have said, have reproached the Institute for affording these opportunities, as if they were regarded by us as our real work.

In connection, then, with the work I have described in the course of this address, I must ask you to let me call your attention to the finances which have been at our disposal. Although we put aside as an endowment fund more than a third of our total contributions, the income derived from this endowment does little more than pay our rates and taxes. It has been sometimes said

that we have erected too large a building ; but a little reflection will show that a very large amount of space for exhibition and other allied purposes is of the very essence of the scheme. Without this, some of the good work we have done would have been impossible. If the exhibition of products had been less complete, those which inquirers have found to be most hopeful for experiment or use might have been the very ones omitted. It is the inspection of a number of specimens which has resulted in this selection. Even if we had invested a much larger proportion of our funds as an endowment, we should still have been left with an income vastly below our needs. How then have we been able to keep the Institute going and to pay the expenses which the work I have been describing necessarily involved? Unlike commercial museums in other countries, the Institute has no State endowment. The only public funds we receive are small contributions from India and some of the Colonies, specially applicable to the care and maintenance of their exhibition-spaces. We have been obliged to find in other ways the means for its support.

Our main source of income has been the subscriptions of those who have become Fellows of the Institute. Many, no doubt, have become Fellows expecting nothing in return but the satisfaction of supporting an institution calculated to do much good. And I think, that when the operations of the Institute come to be fairly appreciated, we may well look for a large accession to the number of Fellows who will afford us this support. We have indeed already nearly 8000 Fellows ; but when it is remembered that our work concerns the whole Empire, this is but a small number. It is by no means sufficient for the work already to hand. And as matters now stand, we should not have maintained this number unless the Institute had elements of popular attraction. The receipts from the public have been more than sufficient to cover the expenses of the attractions afforded, so that we have been enabled to devote almost the whole of the income received from Fellows to work of practical utility. If the popular elements at which some cavil had been altogether discarded, we should have been able to accomplish less, and not more, of this work. It is surely to the credit of those who have administered the affairs of the Institute that they should have been able thus to secure the means of doing that which all must admit to be beneficial, and

which would otherwise have remained undone. If those who criticise our action would provide us with 20,000 Fellows, who in return for their subscriptions would desire nothing but an efficient realisation of the designs of the Institute, we need no longer appeal to popular tastes. At the same time, although we should thus be spared much misconception and misrepresentation, I do not think such a change would be an unmixed good. In saying this I am not thinking of the enjoyment which has been derived by multitudes of all ranks and classes who have visited the Institute, but of the practical work which has been the subject of my address. Of the hundreds of thousands who have passed through these exhibition galleries many, no doubt, have carried away no useful recollections. But, on the other hand, many have realised as they never did before the vast extent and the enormous resources of the British Empire. And not a few, drawn here in the first instance by the desire for recreation, have been led by what they saw to return, with the practical objects of inquiry and business. It may, no doubt, be said that in describing the work of the Institute and predicting for it a useful career, I have been regarding the question with a prejudiced eye. I have been able already to quote some impartial witnesses, and I can appeal to other testimony which cannot be charged with prejudice. The Imperial Institute has already become the parent of similar institutions in other countries. Foreigners who have visited the Institute to study its operations have been led to so strong a belief in its advantages that they have not been satisfied until it found a counterpart in their own country. As one of the latest examples of this I may refer to the case of Philadelphia, where the city has given the land, and the State is providing the building. How closely some of the features of the Imperial Institute have been adopted will appear from an extract from the scheme of the Philadelphia institution :—

“Special efforts,” it is said, “will be made to procure early and complete information concerning the plans and specifications of proposed public improvements and private enterprises that may be open to contract. In the scientific and experimental department, a careful study of the scientific value of all products collected will be made. New tanning barks will be carefully examined ; woods will be studied with reference to their strength,

durability, and capabilities of finish ; gums and resins will be tested for improved varnishes and lacquer. Many new vegetable fibres will be investigated with reference to new applications ; and, in general, new articles will be subject to scientific investigation for the purpose of determining their commercial and educational value."

"We shall soon have our Imperial Institute at Philadelphia," was indeed the observation of a gentleman to whom the organisation and arrangement of the museum there has been largely entrusted.

In conclusion, I appeal to any unprejudiced person whether the Imperial Institute has not already justified its existence, and shown that it is deserving of increased support, and rich in the promise of future usefulness to the commerce and industries of this great Empire.

The conclusion of the address was received with loud applause.

The PRINCE OF WALES, rising amidst applause, said,—Ladies and Gentlemen,—I feel that it would not be right to let you separate to-day without expressing, on my own behalf and on behalf of you all, our thanks to Lord Herschell for the most interesting address he has given us. He has gone most carefully, and as fully as time would allow, over all the different points in connection with this Institute, and has given you a clear account of what we consider its usefulness, and of the work which it has done since it first came into existence. (Applause.) I think, considering that it is only a young institution, that we have not been idle—(applause)—and trust, after what has been said to-day, that the public at large will not think that it has not been useful, or that we have given them any cause for disappointment. Most earnestly do I trust, with Lord Herschell, that we may get more Fellows, for this is a matter of great importance, both as regards the work we have to do and the increase of our finances.

It is very satisfactory to know that this Institute has become the parent of other similar institutions in other countries. (Hear, hear.) In conclusion, I wish personally to tender my grateful thanks to Lord Herschell, to Sir Frederick Abel, to Sir Somers Vine, and to those other gentlemen who work with and under them, for the indefatigable zeal with which they have laboured in the interest of this Institution, and for having given to it so much of their valuable time. (Applause.)

The proceedings then terminated.

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