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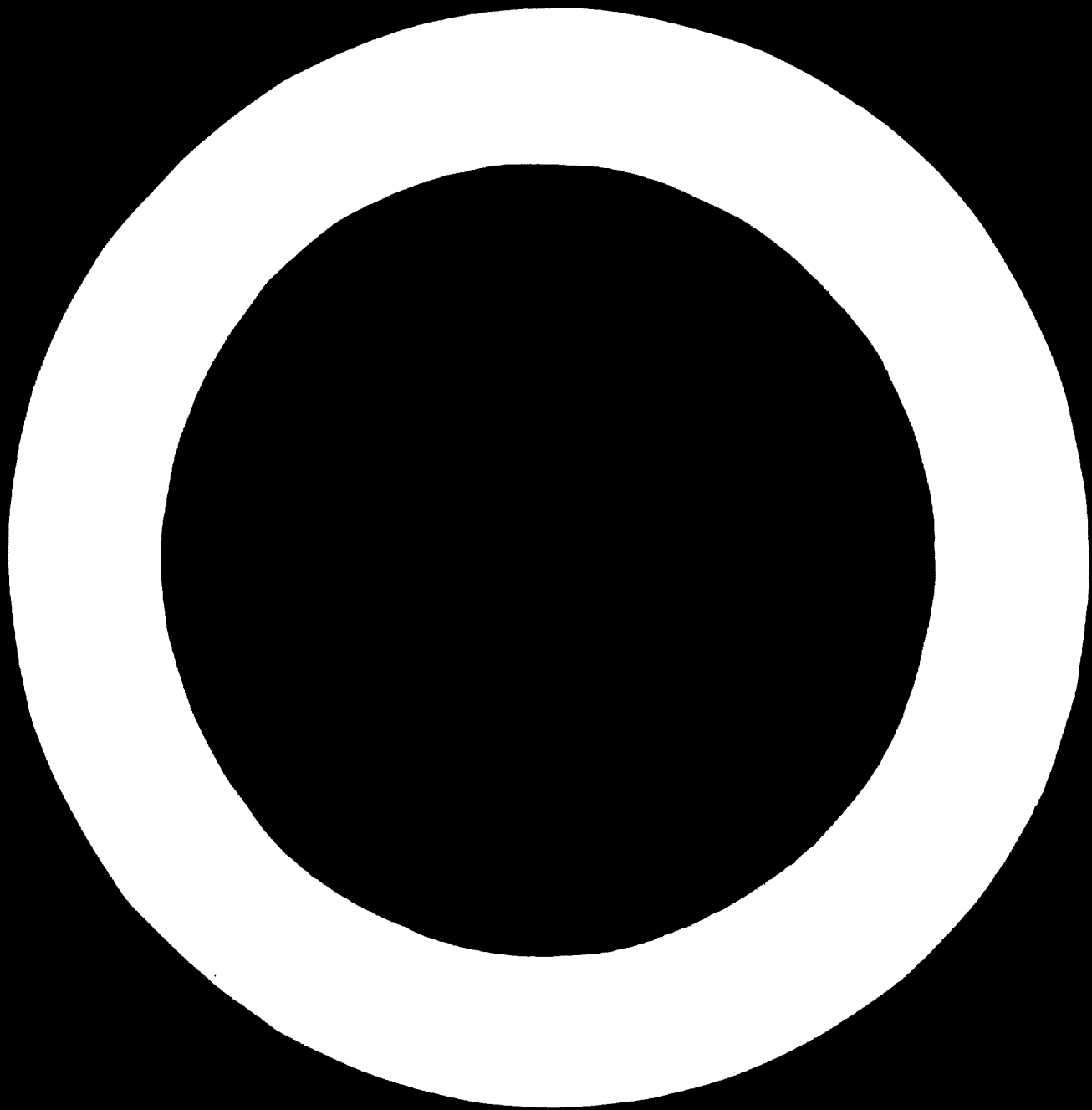
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A Therapeutic Approach to Consulting: An Experience from a Developing Country

The Mission, Role and Organization of the Management Consulting Centre, National Institute of Management Development, Cairo, United Arab Republic

By Ikram Youssef Sayed, Director

Background

Following the Nationalization Acts of 1961 in the United Arab Republic, the National Institute of Management Development (NIMD) was established by Presidential Decree and attached to the office of the Vice-President for Production. Its creation was to provide the training, research and consulting needed for the country's national economic development programmes.

The efforts of the Institute during the first year of its existence were devoted predominantly to training managers through "management development programmes" and to limited economic and industrial research. In 1962 it became necessary to establish a special centre, now known as the Management Consulting Centre (MCC), for the specific purpose of providing, on a specialized basis, those consulting services originally envisaged when NIMD was established. This article is a presentation of the scope of MCC's operations and an analysis of some of its experiences in fulfilling its mission, as well as the structure of its staff and management.

Objectives of the Management Consulting Centre (MCC)

The objective of MCC is to fill the need for management consulting in the United Arab Republic, and possibly other countries with which it associates. As a pioneering enterprise and also as the leading organization of its kind in the United Arab Republic, it serves as a clearing-house for professional skills related to management consulting and also develops and promotes this profession locally. Under the aegis of NIMD therefore, MCC is seeking to establish consulting in the United Arab Republic as a profession requiring extensive academic preparation, where the primary reward is its contribution to society, and where the consultant becomes ethically responsible for helping his client both identify and solve problems, rather than just their symptoms. In addition, he must cope with resistance to change and the implementation of new solutions.

Approach

The fundamental orientation of MCC's consulting concepts may be summarized as follows:

1. Management is basically a pattern of behaviour or conduct which cannot be changed simply by acquiring knowledge of new theoretical concepts, methods or operating techniques. Although the transmission of such concepts and techniques is naturally a part of the formal

course of study presented to participants who attend the management development programmes, actual change can only be effected by diligent effort on the part of the manager.

Thus, while the management development programmes assist the gradual departure from old habits and create motivations to change through case discussions in a safe atmosphere, consulting must in addition adequately prepare the client to function in a competitive job situation, as well as present creative alternatives to traditional thinking or conduct.

2. For a consulting relationship to exist, there must first be awareness of a need for help. Thus the client should be prepared to undergo financial and other sacrifices to obtain this help and implement the necessary solution.

3. Consulting is thus viewed as a process of collaboration to help in initiating and stabilizing change in real existing situations, rather than as an activity of simply providing logical solutions.

4. The above requires the following from the consulting staff:

(a) A comprehensive knowledge of descriptive and analytic management theory, as well as diagnostic theory for locating symptoms of disruption in the management system;

(b) The capacity to analyse their own motives for becoming involved in the consulting relationship, thereby assuring impartial interest in the client's welfare;

(c) The capacity to identify client motivations, particularly whether the expression of an eagerness to change is that of one person or unit or whether there is a readiness for change within the total system;

(d) An awareness of their own resources and limitations, thereby avoiding the destructive effect, for example, of offering competent diagnostic help only, without the guarantee of being able to analyse the implications of these diagnostic findings;

(e) The capacity to guide and adapt to the phases of the process of change. This process extends from the development of a need for change, the establishment of a consulting relationship, the clarification of client problems, the examination of alternative solutions and goals and the transformation of intentions into actual change efforts, to the termination of the relationship with a client who has finally acquired a capacity for independent and continued change;

(f) Professional conduct and personal attributes which can be trusted by a potential client.

Goals and policies of MCC

In order for MCC to realize its objectives, the following goals and policies were formulated in 1962:

1. To staff MCC with full-time professional consultants, able to develop the consulting skills elaborated above. Six of MCC's total staff of twenty-five professionals have Ph.D.'s in Business Administration and related disciplines;
2. To develop a register of readily available professionals outside the Centre, trained in specialties for which there is only an occasional demand. This register now includes about fifteen professionals from the Institute itself, plus others from industry and the academic community;
3. To charge fees for consulting services rendered, thus ensuring both a commitment and an awareness of the need for help on the part of the client;
4. To work with mixed consultant-client teams whenever possible to ensure complete involvement of client personnel;
5. To promote relations with international agencies and other institutions in order to benefit from their experience and minimize bias;
6. To operate and maintain MCC as an autonomous division of NIMD and thus provide the independence necessary for an effective agent of change.

Organization and management

MCC is subdivided into the following departments both at Cairo Headquarters and in the Alexandria branch:

1. *Policy and Planning Department*, which deals with problems of managerial economics, development of long-term plans, problems of corporate structure, mergers, subsidiaries and similar problems;
 2. *Human Resources Department*, which is primarily concerned with problems of organization, personnel, training, and manpower planning;
 3. *Physical Resources Department*, which includes production but transcends it, and includes all types of operation management, such as process analysis, inventory studies, location and layout, scheduling control and standardization;
 4. *Financial Resources Department*, which includes managerial accounting and financial management, as well as information systems;
 5. *Quantitative Analysis Department*, which includes both operations research and statistical design and analysis;
 6. *Marketing Department*, which concerns itself with problems of sales, distribution, warehousing, transportation and advertising;
- In addition, current needs are motivating the establishment of two new departments:
7. *Institutions Management Department*, which would deal with problems of managing institutions, such as hospitals and schools;
 8. *Regional Development Department*, which would deal with the problems of regional and community development.

Staffing and management of MCC

The above organizational units are staffed with group leaders, entrusted with the development of the functional areas indicated, and consultants of various seniority levels based on skill and experience, who have no organizational responsibilities.

The executive authority of the MCC is basically vested in a Management Committee, composed of a director, deputy directors (who may be simultaneously group leaders in charge of one or more units), as well as the Alexandria branch manager. The Director of the Centre is also a member of the Executive Committee of the Institute (NIMD).

Implementation of a request

When a request for consulting services is received by MCC the following steps are taken:

1. *Team*. A senior consultant or, if necessary, a group leader is assigned by the Management Committee to explore with the client the services required. He becomes responsible for reaching an agreement concerning the definition of the problem, the nature and duration of necessary work, as well as the fees and terms of payment. He is further entrusted with choosing the consultant team, directing and evaluating work and submitting progress reports to the Management Committee at monthly intervals.

2. *Diagnosis*. The following orientation is adopted:

- (a) The client's definition of his problem is not taken at face value but rather as a point of departure;

- (b) A total rather than partial approach is pursued in order to explore not only specific functional areas such as marketing and finance, but to help clarify the short- and long-term objectives of the client organization;

- (c) MCC adopts a predominantly client-centered approach and attempts to see matters from a client point of view, in terms of his values, rather than seeking to achieve a normative ideal;

- (d) It is incumbent upon the team leader to identify, from the start, whether the client represents the total system or specific units of it. Because economic enterprise in the United Arab Republic is almost entirely publicly owned, MCC intervenes to solve only the problems of total systems.

3. *Entry into a consultancy relationship*. The mission of MCC as described above is that of a consultant-trainer rather than just a consultant. The distinction is that in the case of the consultant-trainer, the client is expected eventually to possess knowledge of certain techniques and principles; while in a merely consultant situation, a certain additive may simply be prescribed.

In filling the role of consultant-trainer, during the diagnosis phase and before agreement on a definition of the problem, the team leader has the critical responsibility of ascertaining the following facts, *vis-à-vis* the client organization:

- (a) The degree of need for a new orientation and skill;

- (b) The appropriateness of the proposed fee to the proposed services;

- (c) The emotional dependence or hostility which almost inevitably results during the consulting period, along with its effect on the consulting team;

- (d) The possibility of further developing inherent or new skills;

- (e) The availability of professional skill in the prospective consultant team.

Two additional notes on the entry phase. Answers to the above initial questions must be complete, since it is destructive to reach a diagnosis and alert the client to problems about which he has heretofore been unaware, and then not have the competence to carry out the assignment. If answers are not easily accessible, MCC recom-

mends a preliminary survey prior to final diagnosis and active entry.

As a matter of policy, MCC intervenes only when it has received an explicit request for help.

4. *Contract.* Agreements with client organizations include the legal aspects covering the nature, scope and terms of the assignment, but focus mainly on the psychological and social implications of the relationship. It is not envisaged that either party will have to resort to litigation against each other; in fact, there is no authority in the United Arab Republic for arbitration in the field of management consulting.

The written agreement, usually in the form of a letter from MCC, defines the understanding of mutual expectation and is discussed with the client to minimize the possibility of misunderstanding. If the need arises during the assignment, this statement may be referred to for clarification. The consulting team must emphasize at this stage that their primary role is not to provide facts and figures, design systems or specific answers to specific problems, but rather to clarify new images of potentiality, thus helping the client organization to improve its problem-solving skill.

The agreement states a total sum, and payment of fees is usually on a monthly basis. This provides both parties with the opportunity of trial termination or even total termination should circumstances make it advisable.

In addition, it designates an estimated period of time to finish the proposed work. Although this payment scheme is somewhat inconsistent with the model adopted by MCC, because of the difficulty in estimating initially the period required to finish a particular assignment through the training phase, it was found that management in the United Arab Republic was not generally willing or in a position to enter into a consulting relationship on a *per diem* basis.

5. *Consulting.* Consulting within such a framework tends to result in complex relationships between consultant and client. It is possible here to present only representative principles adopted by MCC as essential and critical.

(a) The consulting relationship is a voluntary one, in which the consultant should remain an outsider. Therefore, it is never advisable to accept any role that might make him part of the hierarchical power system of the client organization.

(b) From the outset, the consulting team should seek to establish an open and candid relationship with the client, whose receptivity to frank exchange should already have been explored during the diagnostic period (see 3 (c) above).

(c) Consultants should avoid focusing excessive attention on statistics they collect or on those who contribute them. Similar relationships with all units of the client organization, rather than special relations with any one of them, are important.

(d) Consultants are backed up by MCC and left free to provide frank professional advice without fear of termination of the contract by a hostile client.

(e) The consulting team, by offering only analytical advice, provides a guiding force rather than insisting upon a particular course of action. Final decisions must be left to the client.

(f) The consultant should be sophisticated enough to help the organization recognize and cope with resistance

to change. Such resistance must be viewed as a normal defence mechanism, which is often considerably disguised.

(g) Work should be accomplished, whenever possible, through client committees. Although this may make the consulting relationships more complex, their use is critical in eliciting commitment, lowering resistance and eventually training personnel.

6. *Termination.* MCC hopes, at the termination of an assignment, not only that the client has gained the ability to cope with the problems for which it originally sought help, but that there is evidence of new values, attitudes and a creative capacity to utilize this potential for continuous improvement. This includes the capacity to sense future problems and make appropriate decisions about seeking outside help.

The customary "final report" is regarded as of secondary importance. If client organizations require such a report, especially for future reference, they are asked to prepare it themselves, with MCC acting as counsellor and editor. The general opinion is that if management consulting is eventually to be regarded as a profession, like law or medicine, the real evaluation should be the success of services rendered or the "completeness of the patient's cure".

Should the consulting process take longer than originally predicted in the contract, fees may be renegotiated. Very often delay is due to problems on the part of the client. However, in those cases where the extension of the consulting service is due to poor estimate on the part of MCC or other problems for which MCC considers itself responsible, the client is not asked to pay additional fees.

Obstacles and dilemmas

The following is a brief review of some problems which confronted MCC during its development, as well as currently. Since such situations are not unusual for developing countries, their presentation may be of use to others undertaking a similar course of action.

In the early phase of operation of MCC, the United Arab Republic was undergoing a rapid socio-economic transformation, which involved nationalization of private enterprise, massive investments in public projects and the general establishment of new structure and machinery for the operation and management of this public sector. It was required by law that each enterprise devise and submit a formal organization chart to the Government for approval, along with detailed job descriptions and evaluations. MCC, therefore, mainly devoted its efforts to helping clients perform this task, and was forced to put aside the solution of real managerial problems and any aspect of training.

In 1963, an international development agency presented a grant to MCC in the form of a team from an established management consulting firm to help develop its operations in this area. It soon became clear that this particular firm took a principally engineering approach to consulting, providing specific answers to specific problems and absolving itself of any responsibility for diagnosis, training of client personnel or coping with resistance. Also, their particular experience gained from another culture and socio-economic system made it difficult to provide meaningful advice.

By 1965 the conflicts and limitations were such that

the association with this management consulting firm unfortunately had to be terminated. Since then MCC has been experimenting with its own approach, as described above.

The following are its current dilemmas in this connexion:

(a) *Diagnosis.* The difficulties often experienced in diagnosing problems of client organizations are due to lack of clinical skill on the part of consultants, compounded with lack of adequate descriptive and diagnostic theory relative to problems of developing countries. The latter drawback, in the opinion of MCC, is the chief reason why some very experienced consultants are so notoriously ineffectual in initiating and implementing change in developing countries.

(b) *Security in confrontation.* In order to provide sound professional advice, the consultant must feel freely candid with the client. Actual experience shows that although salaries and positions of consultants are independent of client judgement, MCC itself, as a Government agency acting as a consultant to publicly owned enterprises, does not feel as free as it should. The problems are not only in the rules and regulations covering its operation, but also in behavior patterns and value orientations, especially relating to authority, which sometimes create imag-

inary obstacles for some of the staff. It is generally felt that this problem may be common to all developing countries, which tend for the most part to be traditional societies.

(c) *Staffing.* Because major economic development programmes were inaugurated in the United Arab Republic less than ten years ago and owing to the scarcity of pragmatic or experience-oriented individuals available for consulting work, it has only been possible to recruit academically qualified personnel. This acute problem has made us aware of the need for a "crash" staff development programme.

Over-all picture

Many industries have already been serviced by the Centre.

Examples include ceramics, chemicals, cotton processing, metallurgical and pharmaceuticals; examples outside the industrial sector include banks, publishing companies, transportation organizations and a news service.

On balance, and despite some disappointments, the volume of work performed by MCC in 1965/1966 was 1½ times that done from the year of its establishment in 1962 until 1965.

National Bureau of Standards

Gaithersburg, Maryland, United States

International Symposium on Technology and World Trade (15-17 November 1966)

Industrial Research and Development News congratulates the United States Department of Commerce on the dedication of the new National Bureau of Standards' facilities and the Symposium sponsored to mark this occasion.

On the occasion of the opening of the National Bureau of Standards' new \$US 120 million complex of laboratories and supporting facilities at Gaithersburg, Maryland, United States Secretary of Commerce John T. Connor welcomed 500 participants from 25 countries to a two-day dedicatory symposium on technology and world trade.

Mr. Connor pointed out that at the age of 65, the National Bureau of Standards has newly equipped itself for co-operating with business and industry in international standardization of industrial products, development of performance criteria for technical goods and services, and of methods for measuring the performance of entire systems, and the dissemination of scientific data and technical information. These efforts, he observed, are in keeping with a world trade volume now approaching \$US 200 billion a year, which has doubled in the past ten years.

Professor Marshall McLuhan, Director of the Centre for Culture and Technology at the University of Toronto, discussed on the first day the workings of the human mind in the new "satellite environment". He was followed by Yale University economics professor Richard Cooper, whose talk concerned the question: Is America leading or trailing Europe technologically? Noting that both assertions have been made, he sought to reconcile the apparently contradictory doctrines. Professor Cooper held that the first errs by taking account only of the rapid stream of United States innovation, while the second over-

emphasizes the increase in diffusion of United States know-how among European competitors.

Competition and co-operation were treated as opposite sides of the same coin by symposium participants concerned both with the free flow of world trade and improvement of world living standards. The co-operation note was sounded especially vigorously by Vice-President Hubert H. Humphrey in a banquet address at the State Department. Mr. Humphrey backed more and faster economic integration of developing Latin American, Asian and African nations; an international patent system; possible establishment by private corporations from various countries of "joint training institutes in talent-short parts of the world"; increased receptivity by United States Government agencies "to proposals from other governments, international organizations, private companies or groups of companies, any source in fact which wants to put technology to wider and better international use".

Dr. Pierre Uri, Studies Director for the Atlantic Institute in Paris, decried international co-operation that is carried on in a spirit of competition—"when two countries come together to beat a third one"—but found encouragement in the existence of some 300 national and regional organizations dedicated to various forms of international co-operation.

Mr. Feivel Hadass, Director of Israel's Standards Institution in Tel Aviv, reinforced the view that emerging

countries need simple, not sophisticated, technology. He felt that lack of international standardization was not only a waste of time and money, but a serious trade barrier. He expressed a conviction that the United States could provide more dynamic leadership, in terms of an international yardstick, for world trade.

Professor V. K. R. V. Rao of India's planning commission, New Delhi, spoke of dilemmas facing his populous country, which has a low level of literacy and lacks a domestic market capable of sustaining modern technology —yet needs such technology for economic viability. He urged the establishment of an economic international agency for distribution of technology to developing countries; the usefulness of international organizations quickly

spreading functional literacy; the provision of private foreign capital for building up export industries; "Peace Corps" through which philanthropists might contribute money for scientific and technological development.

Dr. Ibrahim Helmi Abdel-Rahman, United Nations Commissioner for Industrial Development, linked technology transfer between nations to the transfusion of blood in living bodies. Dr. Rahman said that a technology "world blood bank" such as Professor Rao had proposed would be too much like blood in a test tube. "You can have institutes studying technology," he said, "but you have to make a connexion before absorbing technology into the main-stream."



Figure I. Secretary of Commerce John T. Connor dedicates the National Bureau of Standards' new laboratory complex at Gaithersburg, Md., 15 November 1966. The two men on the right (from left to right) are NBS Director A. V. Astin and Dr. J. Herbert Hollomon, Assistant Secretary of Commerce for Science and Technology.

Figure III. NBS technicians inspect one of the 13 beam ports of the Bureau's new 10-megawatt nuclear reactor, which has just been completed. Radioactivity will be confined to a small space at the height of the ports by the 2-m.-thick concrete wall. Fuel will be loaded and operation monitored and controlled from the level above.

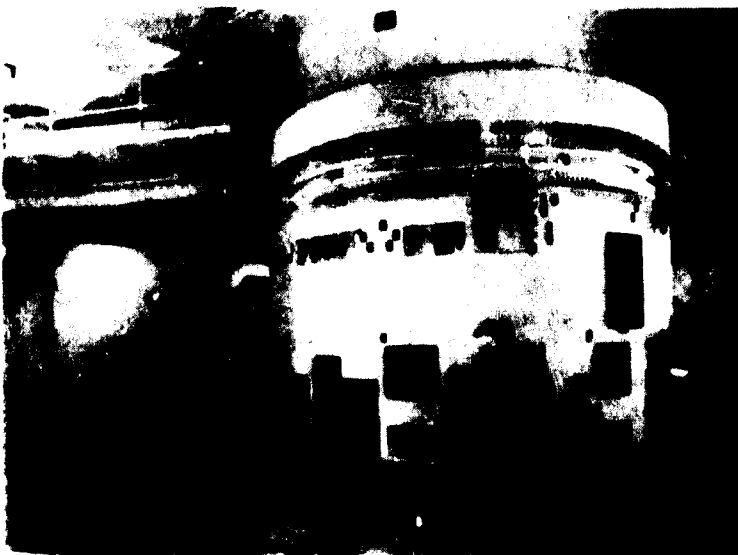


Figure II. The NBS travelling-wave linear accelerator can generate 100 MeV electrons. The nine 10-foot sections of the linac can be seen.

Figure IV. Fuel elements are installed in the core of the nuclear reactor by means of a transfer system in the top shield plug, here seen from below. Each element inserted in the loading port beside the plug will be positioned above the desired hole by means of the transfer arms and engaged by an insertion collar (one for each of the 37 positions) to be lowered into the core. Spent elements are removed by the reverse procedure.



Dr. Abdel-Rahman called for closing the gap in developing countries between industrialization and modernization. He advocated revival of a "concept of shared responsibility", akin to Lend-Lease in World War II, as the path along which developed and developing nations can travel together toward peace.

Francis McCune, General Electric Company Vice-President, said "there is no question but that international standards will, more and more, become the commercial documents by which future international trade will be conducted".

Symposium participants generally spoke of comprehensive moves towards standardization on many fronts under the auspices of organizations including the Organization for Economic Co-operation and Development; the European Economic Community; the European Free Trade Association and NATO; the International Atomic Energy Agency; the International Commission on Radiological Protection; the International Electrochemical Commission; the International Standards Organization; the International Organization for Legal Metrology; the International Commission on Rules for Approval of Electrical Equipment (CEE); the United States of America Standards Institute,¹ and others.

How corporations may organize to meet national and international market needs at the same time was discussed

¹ See the article which follows.

by Elmer S. Groo, IBM World Trade Corporation Vice-President. His firm, he said, runs the technological side of its business on an essentially uniform world-wide basis. On the managerial level, Mr. Groo continued, IBM strives to keep each overseas operation "a part of that country's industrial economy, responsive to national goals and interests and equipped to provide the same level of support and service to the customer that we would in this country".

The roles of skilled management and of individual invention and entrepreneurship were the focus of much discussion at the symposium. Speakers pointed out that neither scientific discovery nor heavy research and development expenditure automatically bring about technological advance.

In summary the Symposium attempted to:

(a) Examine and forecast the impact of technology upon the patterns and conduct of international trade and development;

(b) Consider the international environment needed for the wider generation and utilization of technology;

(c) Explore prospects for evolving policies and institutions that promote economic development through technology and trade.

The proceedings of this Symposium are in preparation and will be available soon after 1 January 1967. Inquiries should be addressed to Mr. Robert Stern, Office of Industrial Services, National Bureau of Standards, Gaithersburg, Maryland, United States of America.

Industrial Research and Development News Interviews:

**Dr. George Gordon, Chief
Office of Engineering Standards Liaison and Analysis
National Bureau of Standards**

Question 1. What is essentially the relationship between a sound and compatible standardization programme and a country's success in a competitive world market?

As nation after nation becomes more urban and industrialized, a technological sophistication is developing which is leading to a new kind of opportunity and challenge for the rest of the world, in the building of a mutually advantageous system of world trade. Ideally, each country should be assured of its share of the world's markets when given the chance to compete fairly with other countries on the solid ground of technical competence and industrial efficiency. The basis of this kind of competition is the existence of an adequate and compatible system of internationally accepted standards.

Technology and commerce, at all stages of development, must be based on some "language" of communication, and the "language" of which I speak is, of course, standards—that body of commonly agreed upon definitions, descriptions and items which are repetitively referenced, used for evaluation or used as a basis for comparison.

Each brand of industry and technology has its own requirements for standards, as does each nation or region of the world. If adequate standards are available they will be used; if not, they will be developed by whatever methods are available, regardless of how imprecise those methods

may be, including that most capricious of all standards development procedures—common usage and tradition. The result of the latter course would inevitably be a world with as many standards languages and dialects as it now enjoys in terms of spoken languages.

Differences in standards can be as significant a deterrent to trade between nations as tariff barriers, and may be even more so, since standards help shape the technologies of their respective nations. Thus, different standards foster different technologies, which require different and non-interchangeable industrial components and products. Once started, the cycle is hard to stop, since standards foster technology and the existing technology perpetuates standards.

Question 2. Within what framework has NBS undertaken its mission as the United States "standard bearer"?

NBS has, throughout its history, endeavoured to fulfil its mission for "... the custody, maintenance and development of the national standards . . .", not by writing standards, but by developing data that provide an understanding of the scientific principles on which national standardization programmes are based and measurement methods for evaluation of the standardization products. The wisdom of this approach has been borne out over the years; our

domestic industry has voluntarily chosen to base the majority of its standards on the firm foundation of scientific fact when such fact was available.

The National Bureau of Standards has played a key role in creating the scientific foundation on which the United States domestic standards programme is based. We feel we have a similar responsibility to take a major part in making this technology of standardization available to nations throughout the world which have developing standardization programmes.

Question 3. What role do you foresee for NBS in developing international standards, especially in developing countries?

By concentrating on providing the impartial scientific facts on which we have based our standardization decisions, we will provide them with the means for making rational, rather than arbitrary, standardization choices. The ultimate standards would be theirs, not ours. But they would be compatible with ours, because of the common technical base.

In its new facilities, which are being dedicated this month, NBS can expand the type of technical support for world standardization that has for a number of years been carried on in the old facilities. Such support, complemented by similar support from other highly developed nations, would result in the writing of a minimum number of

standards restrictive to trade, and create a climate in which a body of compatible world standards could be written. Since the technology of these nations tomorrow will rest largely on the standards they adopt today, the importance of compatibility cannot be overstressed.

To provide the technical support and training that will make a programme of this type effective will require a considerable increase in effort by the United States Government. The Department of Commerce is currently seeking legislation which will authorize and fund some increased international standardization activity by the United States institutions.

An effective programme will require maintaining an awareness of emerging nations' standards activities; analysis of their needs and identification of the technical support that would be most effective; establishment of priorities, programming and staffing of technical support teams; and the multitude of negotiations and liaison associated with such in-depth technical support.

The rewards are both selfish and unselfish. Technically sound standards, compatible with each other, will open world markets, and at the same time establish the foundation for sound industrial technology, prosperous nations and a better world. The penalty for inaction is the restriction of world trade owing to standards barriers, production inefficiencies and the possible faltering or failure of the economies of emerging nations owing to unsound industrial technologies and standards.

USA Standards Institute Is Announced

A completely restructured facility designed to expand the programme and accelerate the output of voluntary national standards was announced on 31 August 1966 with the establishment of the United States of America Standards Institute. Serving as a focal point for industry, labour, Government and consumer groups concerned with standardization in the United States, the new Institute supersedes the American Standard Association.

Formation of the new organization was prompted by national studies which revealed needs not being met in a number of areas. Foremost among these were direct consumer participation in standards development and broader participation of American industry in international standards work, according to Donald L. Peyton, Managing Director of the USA Standards Institute.

The former ASA, which had been established in 1918, served many fields of industrial engineering and safety standards and was widely acknowledged for having done an important job in such areas. National studies made over a three-year period resulted in recommendations and specific planning for the Institute. These were conducted more or less concurrently by the ASA's Board of Directors and a Panel on Engineering and Commodity Standards of the United States Department of Commerce Technical Advisory Board. Many of the Panel's recommendations were incorporated or adapted into the Institute.

The USA Standards Institute has member bodies composed of national associations and societies, company members from commerce and industry, sustaining members of individuals and groups having substantial but more general interest in standardization, and honorary mem-

bers. Federal Government departments and agencies are eligible as are regional authorities and state groups.

The new Institute is set up to function with three operating arms which will accommodate all elements of the economy concerned with standardization, and provide for them a dynamic role in helping to manage the administrative and technical affairs of the Institute.

Responsibility for standards activities including the approval of USA Standards rests with the Member Body Council. Consumer representatives and company representatives can recommend standards projects to be developed through the Institute's Consumer Council and Company Member Council. In essence, this is a three-dimensional approach to national standards. The ASA, on the other hand, had only one Council with exclusive responsibility for all standardization matters, and its membership was restricted to national trade, technical and professional groups.

Standards approved by the Institute are designated USA standards. All American standards approved under the former ASA producers have been redesignated as USA standards. The ASA workload of 475 national standards projects and over 100 international projects in which American interests are participating have also been absorbed.

The Standards Institute is the United States member of the International Organization for Standardization (ISO); the International Electrotechnical Commission (IEC) located in Geneva, Switzerland; and the Pan American Standards Commission (COPANT) in Buenos Aires, Argentina. The Standards Institute is the liaison representative between the United Nations and the ISO.

Creation of a European Association for Better Administration of Industrial Research

The European Industrial Research Management Association (EIRMA) came into being in May 1966, following a conference of senior industrialists from sixteen European countries, organized by the Organization for Economic Co-operation and Development (OECD) and held at Ménars in France.

The launching of this new Association was the result of exploratory work by the OECD, which led to a recommendation for the creation of such a body by the European-North American Conference on Research Management held at Monte Carlo in 1965.

The main aim of EIRMA will be to contribute to the effectiveness and achievements of industrial research in Europe. By promoting discussion and study, it hopes to improve the organization, direction and management of research, including the application of its results in production.

EIRMA will have its headquarters in Paris, but will remain at OECD Headquarters until new arrangements are completed. The Association, however, constitutes a distinct and autonomous body under the direction of its own Governing Board.

The activities of EIRMA will be based on the aims and purpose of the Association as expressed in its Statute:

- "(a) The study of the organization and management of industrial research, including scientific research and technological development;
- "(b) The development and the wider use in industry of improved, more economical and effective methods and techniques of managing industrial research;
- "(c) Wider understanding of the place of research within the firm, of the role and requirements of research in industry generally, and of those aspects of economic, education and science policy which have a special bearing on research in industry or which research in industry can influence".

Practical work on a number of problems facing the Association was begun during the inaugural meeting. One discussion group examined the question of the choice of research projects. Many firms, public authorities and university research groups have developed systematic methods of evaluating the return on individual research projects as a basis for choice. Some of these methods involve mathematical models and operational research techniques.

A second group discussed obstacles to technical innovation in Europe and methods for overcoming them. The groups' final discussion list of these obstacles was as follows:

- (a) Patents: the existence of different legislation in each country;
- (b) Internal barriers: poor communications, bad administrative, structural or personal relationships;
- (c) The European market: its fragmentation and resistance to change;
- (d) Critical size: relatively few companies, or indeed countries, could afford the scale of research and development effort needed to match external competition;
- (e) Quality standards: these vary widely from country to country, in food, drugs, safety, building regulations etc.;
- (f) Shortage of qualified manpower: laboratories suffered from shortages of research staff and technicians;
- (g) Language and cultural barriers: likely to decline in importance as the interchange of students between countries increases;
- (h) Absence of major government programmes: the effects, for example, of a space programme on the technologies directly involved and the transfer and spin-off to other sectors of industry. This second group also advocated action to develop and adopt a unified European system for patent legislation.

Manufacturers' Associations Foster Industrial Development

Among the numerous non-governmental organizations concerned with the growth of industry, there are wide functional and structural differences. All of them, however, have two principal distinguishing characteristics in common: each is an institutionalized collectivity of business enterprises and all, or at least a large proportion of these enterprises, are engaged either exclusively or largely in manufacturing. Random examples of these are the Barbados Manufacturers' Association; the National Association of Manufacturers of the United States of America; and the Japanese Textile Machinery Manufacturers' Association. It is convenient, therefore, to refer generically to all organizations of this type as "manufacturers' associations".

At work in a large number of industrialized as well as industrializing countries, these associations have an impor-

tant role to play. In some countries, there may be only one association of manufacturers for the entire manufacturing sector of industry; the number varies between countries from several to hundreds. To date a global statistic has not been ascertained, but undoubtedly it runs into thousands and covers almost every aspect of industrial activity.

A recent survey conducted by the Centre for Industrial Development at the United Nations has attempted to examine some particular functions and activities of the various manufacturers' associations and their effect on the process of industrial development.

Substantial data for the survey came from information supplied in response to a questionnaire. Some questions on which information was requested touched on the relationship between these associations and areas relating to the production of manufactured goods—namely, industrial

planning, productivity, management, investment, research, training, standardization and project feasibility studies. Other questions related especially to the marketing of manufactures—namely, prices, patents and trade marks. The bulk of the information received will be analysed in a report to be published by the Centre's successor, the United Nations Industrial Development Organization (UNIDO). This article is meant to present a brief preview of portions of the data received.

Industrial planning

National manufacturers' associations with general membership often play active roles in national industrial planning. For example, organizations such as the Asociación Nacional de Industriales, Colombia; the Associação Industrial Portuguesa; the New Zealand Manufacturers' Federation; and the Victorian Chamber of Manufacturers, Australia, urge participation in country planning or industrial development.

In addition to national manufacturers' associations, sectoral associations are often equally active in planning: for example, the Indian Woollen Mills Federation, which makes suggestions to the Government on the mill capacity to be licensed and provides it with forecasts of supply and demand. There are also instances of concern with planning operations for projects in which manufacturers themselves eventually engage.

Industrial productivity

In a second role, numerous manufacturers' associations may link themselves in some way with specialized bodies concerned with industrial productivity. Examples of these are the Asociación de Industriales Metalurgicos, Chile; the New Zealand Manufacturers Federation; and Trinidad's Employers Consultative Association. In general, these associations seek to stimulate productivity in all branches of industry by means of discussions, dissemination of technical information, encouragement of programmed instruction and modern aids to training—thereby improving the level of labour in production.

Industrial management

Effective business management is a prerequisite for successful industry. Finland's Union of Manufacturers, Trinidad's Chamber of Commerce and the National Tool and Die and Precision Machining Association of the United States are examples of manufacturers' associations which consider it their responsibility to organize management training courses. Others help carry out this role by membership in specialized bodies in this field; for example, the Confederation of British Industry, which is represented in the British Institute of Management. Associations may also publish articles on industrial management in their own journals, as is the case with the Canadian Manufacturing Association's *Industrial Canada*.

Investment in industry

The efforts of a number of manufacturers' associations to encourage investment in domestic undertakings have been directed mainly towards the creation of a suitable national economic "climate". These efforts can take the form of investigations of the public monetary and fiscal policy's

bearing on the financing of industry. The Asociación Nacional de Industriales, Colombia, and the Confederation of British Industry collate views of manufacturers on public incentives to investment and issue regularly analyses of the investment plans of a large number of industrial undertakings.

National manufacturers' associations are often closely concerned with foreign investment. A case in point is the Confederation of British Industry, which periodically publishes studies on investment possibilities and economic conditions in several developing countries.

Industrial research

Associations have become increasingly concerned with research. The Canadian Manufacturers' Association has now set up a special Committee on Research and Development; the Chemical Industries Association, United Kingdom, provides its members with a comprehensive chemical engineering research and advisory service. Technical research in particular sectors of manufacturing industry is frequently sponsored by a number of associations.

Industrial training

The interest taken in industrial training is also increasing and of a wide variety. Associations such as the Asociación de Industriales Metalurgicos, Chile, co-sponsors with other industrial services' and organizations' training schools and annual industrial prizes. Other associations, such as the British Electrical and Allied Manufacturers' Association, collaborate with the Government in organizing apprenticeship training programmes. The Canadian Manufacturers' Association participates in decision-making bodies concerned with apprenticeship training. A number of associations, such as the Confederation of British Industry, issue periodicals on training, and some, such as the Finland Union of Manufacturers, the Comissão de Productividade de Associação Industrial Portuguesa, organize training courses, seminars and other technical education programmes on their own or in collaboration with their respective Governments.

Standardization

National standards institutes, a natural adjunct of industry in developed countries, are appearing in growing numbers in less developed countries. Manufacturers contribute to this important area by association with these institutes, by membership in international standards groups or by engaging in work of their own in this field.

Feasibility studies of industrial projects

Activities bearing on this question, in which associations of manufacturers may engage, are generally confined to preliminary discussions with industrialists contemplating manufacturing developments, including suggestions on the choice of specialized consultants.

An instance of participation in feasibility studies is reported by the Asociación de Fabricantes de Conservas, Chile, which, in conjunction with the Instituto Chileno del Acero, is studying projects for new plants or for extensions of existing ones, to be financed from external aid for industrialization.

Marketing of manufactured products

Apart from the activities which come under the heading of patents and trade marks, the marketing services performed by these associations, especially in the field of exports, vary considerably in scope. They may, for instance, co-ordinate export policies; promote international fairs; carry out market surveys at home and abroad; sponsor educational programmes in the techniques of exporting and the characteristics of foreign markets; prepare studies and reports; disseminate information; participate in advisory councils for the promotion of trade and exports; and collaborate with other national and international organizations in the promotion of exports and marketing of manufactured products. Nearly all manufacturers' associations are engaged in some form of marketing promotion, which represents one of their most important contributions to economic development, not only because it aids and protects them but also because it fosters international trade and industrial development.

Patents and trade marks

Activities in these fields tend to be confined to watching legislative modifications and, where deemed necessary, making appropriate presentations to the public authorities. Some associations act mainly through specialized bodies, e.g., the Confederation of British Industry, which is represented in the Board of Trade's Trade Marks Liaison Group and in the Trade Marks, Patents and Designs Federation.

Some associations of manufacturers provide their members with direct services in these fields. For example, the Canadian Manufacturers' Association maintains two Registered Trade Mark Agents on its staff, thereby offering a complete Canadian trade-mark service; and, in addition, a Registered Patent Agent who does not prosecute patent applications, but limits the Association's activity to simple searches for Canadian patents which correspond to foreign patents, or the registration of assignments and the securing of copies.

Malaysia Plans for Industrial Development

News from the Industrial Development Division, Ministry of Commerce and Industry

In order to lend encouragement and support to Government plans for rapid industrialization of Malaysia, progress is already well under way to establish a number of institutions which will be expected to play a vital role in this process, even in the early days of their existence. The development stage of three such institutions is as follows:

The *Standards Institution of Malaysia (SIM)* was established this year within the Ministry of Commerce and Industry, under the guidance of an adviser from the United Kingdom Colombo Plan Regional Programme. The secretariat office now in operation on an interim basis, awaits formal approval by Parliament of the Standards Bill, which will legally establish SIM as a corporate body.

SIM will be responsible for both the preparation and promotion of industrial standards and for granting the final stamp of approval to locally produced goods, which will be expected to meet high international criteria. The Ministry of Transport has already requested that, in view of an early introduction of Road Transport Regulations, SIM undertake the preparation of standards for safety belts and crash helmets. Although organizational procedures are not yet finalized, the available testing equipment in Malaysia

is being located for use on a temporary basis, so that SIM can immediately commence its first assignment.

The *Federal Industrial Development Authority (FIDA)*, which is not fully established, was created by an Act of Parliament in 1965 with the purpose of undertaking economic and industrial feasibility studies and promoting industrial development in general. Through the information it gains, FIDA will be expected to offer specific investment opportunities to potential investors and thus encourage a faster rate of growth in the manufacturing sector.

The Malaysian Government is at present searching for an international expert on industrial development to assume the position of director of FIDA. Nevertheless, FIDA will begin operation in 1967 with a full complement of technical officers.

The *National Institute for Scientific and Industrial Research (NISIR)*, although not yet officially established by Parliamentary act, is still expected to assume its place in the near future; in fact, preliminary arrangements have been completed. NISIR will concern itself with identifying, processing and finding industrial uses for local materials, along with the improvement of industrial techniques and the utilization of by-products.

Australia Will Aid Industrial Research and Development Efforts In Industry

Australia has taken a new step aimed at encouraging industrial research and development work in industry. On 16 August 1966, the Treasurer of the Commonwealth of Australia, the Rt. Hon. William McMahon, M.P., announced in the 1966-1967 Budget Speech the Government's decision to grant up to \$US 6 million annually for a scheme encouraging Australian industry to undertake more research and development work of its own.

"In a world where technology is changing rapidly and becoming increasingly complex, industrial research and

development is assuming increasing importance in the promotion of the nation's industrial strength and efficiency", Mr. McMahon said.

Details of the scheme are still being finalized, but eligibility for grants will be confined to firms which increase their expenditure in research and development, as compared with a base period.

Mr. McMahon conceded that expenditure on the scheme during the first year will necessarily be small, both because pertinent legislation has yet to be enacted and because the

scheme will apply only to *expanded* research and development. Provisions are being made for the expenditure of \$US 250 000 in 1966-1967.

Commenting on the scheme, Mr. W. W. Pettingell, President of the Chamber of Manufacturers of New South

Wales, said: "The new provision to encourage research and development throws a responsibility on Australian industrial management to use the grants in a constructive way".

New Foreign Investment Law of Korea

The National Assembly passed a new foreign investment law on 14 July 1966, designed to support the nation's endeavour to induce foreign capital resources into the country and to replace an existing law considered too limiting.

Highlights of the new law are as follows:

1. Abolition of investment ratio system and adoption of direct foreign investment system

The minimum level of investment by foreign businessmen desiring to invest in the Korean economy has thus far been 25 per cent of the shares of the companies in which they are involved. This restriction has been eased by the new foreign investment law, which offers expanded opportunities for foreign participation. Direct investments by overseas businessmen will require the permission of the Minister of the Economic Planning Board of the Government. However, the acquisition of shares resulting from increases in capital or inherited or bequeathed shares must now only be reported to the Korean Government.

2. Abolition of restrictions on remittance of profits

The old law provides that foreign investors should not remit to their home countries more than one fifth of the principal per year. The new law has eliminated this restriction.

3. Rules strengthened concerning government repayment guarantee

The Government annually sets up a repayment guarantee programme. The programme is laid before the National Assembly sixty days before the commencement of the fiscal

year. The amount of principal and interest repayment which the Government guarantees cannot exceed 9 per cent of the year's total foreign capital induced into the country. Those business firms which participate in the repayment guarantee programme are now required to recruit subscriptions to the shares five years after the inception of business activity.

In addition, the Government retains the right to inspect the management and property of the firms involved in the guarantee programme. It also retains the right to dispose of collaterals in accordance with laws and regulations concerning disposition of national taxes in arrears. The executives of the firms involved in the programme will have to take responsibility for losses incurred in the course of repayment of loans on a par with the Government.

4. Tax incentives for foreign investors

Foreign investors will be exempted from income tax, corporation tax and property tax in the first five years. For three years after that they will be given a 50 per cent tax cut.

5. Formation of screening committee

A committee will be set up to handle matters concerning approval or cancellation of repayment guarantee plans. The committee also will handle over-all foreign capital inducement problems.

As a protection to domestic industries, the new foreign investment law bans import of those commodities which can be produced in Korea.

Interregional Symposium Sponsored by the United Nations and the USSR

The Development of Metal-Working Industries in Developing Countries

An interregional symposium on the development of metal-working industries in developing countries was held in the USSR for a one-month period beginning on 7 September 1966.

Participants from twenty-five developing countries attended, in addition to experts from industrially developed nations, observers from ten countries and the International Labour Organisation (ILO).

The Symposium programme

The Centre for Industrial Development of the United Nations, in co-operation with the State Committee for Science and Technology, the Ministry of Machine Tool Industry, and the Experimental Scientific Research Institute for Machine Tools (ENIMS) of the USSR devised a comprehensive programme to review and analyse important economic and technical problems both of establishing and developing the metal-working sector in developing countries. The Symposium sought ways to assure future constructive action in this area.

To supplement and practically illustrate discussions and to offer an opportunity for valuable exchange with plant managers and technical personnel, an extensive plant tour was also arranged by the Government of the USSR. It began with a visit to the machine tool plant Krasniy Proletary in Moscow, where participants also saw the first State bearing plant, the Ordzhonikidze Machine Tool Plant, as well as the Experimental Scientific Research Institute for Machine Tools (ENIMS).

In Leningrad, the group visited the Sverdlov Machine Tool Plant, the Ilich Grinding Machine Tool Plant and the Electrosila Plant; in Kiev, the Automatic Machine Tool Plant and the Krasniy Excavator Plant; in Erevan, the Sevan power stations and the Lusavan Machine Tool Plant.

The Symposium agenda included the following:

(a) Survey of modern development and trends in machinery production and metal-working practices, and the state of metal-working industries in developing countries;

(b) Trends and problems in the design of industrial machinery and equipment, and in the design of other engineering products in the metal-working sector;

(c) Economic problems in the development of the metal-working industries.

The Symposium report

At the closing session of the Symposium, on 5 October 1966, the report submitted by the Drafting Committee was adopted. The conclusions made in the report emphasized the following:

(a) The state of the metal-working industry is roughly indicative of the level of a country's industrial development. The contribution of metal-working industries to employment and over-all production is higher in developed than in developing countries.

(b) The development of machine building is not only one of the most important factors in industrialization, but also increases national revenue and employment in developing countries.

(c) The developing countries are in various stages of metal-working development; therefore, it is not possible to prescribe one formula for all of them. In considering the conditions necessary for establishing and promoting metal-working industries, a thorough knowledge of each country and the stage of its development are factors necessary for consideration.

(d) The trade policies employed by Governments of developing countries can either protect or hinder newly developing industries. Such policies should lead neither to complacency nor to stagnation of industry.

(e) Because of the absence of universally understood specifications, difficulties have arisen in international trade of machine tools.

(f) Knowledge of the latest metal-working innovations and up-to-date production methods, including mass production techniques, is necessary in order to enable the developing countries to select that which is best suited to their needs.

Because of scarce resources, the developing countries cannot undertake research on their own in the field of machine tools and metal-working. The co-operation of industrialized countries and international organizations—along with regional co-operation—can help solve this problem.

Centres established for the specific purpose of collecting data and disseminating information will greatly help the development of metal-working industries. Centres can also assist in regulating industrial standards in the metal-working field.

(g) Economic considerations are also important. In addition to financing, it is necessary to know to what extent the existence of metal-working industries will affect the country's over-all economy. Input-output analyses, break-even analyses and other related techniques, a current census of manufacturing plants, machinery inventories and the development of statistical departments equipped with computers are required to acquire necessary background for economic considerations.

Local resources and services must be taken into account during planning, including the availability of spare parts and cost of maintenance. The possibility of setting up a centralized repair shop for machines, if transportation allows, should also be investigated.

Metal-working industries require large investments, and for countries too small to start and maintain such industries, regional co-operation constitutes one solution. Financial and technical assistance from industrialized areas constitutes another.

(h) Manpower requirements for metal-working industries should be considered as early as the planning stage, so that training can begin where necessary. A pool of local managerial staff and experts who can be moved for "on the spot" assistance is one approach to the problem. It gives developing countries the incentive to train their own experts and prevent the "brain drain" from developed countries. This is another field where regional co-operation and advanced nations can play important roles.

(i) In order that high quality metal-working machines are maintained in the world market, modern and practical designs from advanced countries can be obtained for the initial stages of machine building through licence agreements, but it must be borne in mind that change in environment often necessitates modifications. Patent systems in developing countries will both induce and protect innovations that may result from local adaptation.

The Symposium's report made some of the following recommendations:

(a) Establishment of an information centre to investigate and answer technological and economic questions related to the problems of metal-working.

(b) The United Nations should extend help in promoting and organizing research and development institutes to meet local needs of developing countries. In their initial stage, institutes should exist as small pilot organizations and gradually expand. The most expedient locales for such institutes should be investigated first.

(c) The United Nations should expand its advisory services to developing countries, specifically in assisting the organization and establishment of new metal-working industries and the selection of types of products.

(d) An international multi-language classification system, to include all metal-working machines, should be initiated under the auspices of the United Nations. This could eliminate existing confusion and misunderstanding of terminology. Such classification should be preceded by an international definition of a "machine tool".

(e) Investigation by the United Nations for adapting universal acceptance tests for new machine tools is recommended. Type testing and grading of machine tools with United Nations assistance is also recommended for this investigation.

(f) On-the-job training courses, in both developing and developed countries, for machine operators, technicians and engineers are at present insufficient. Establishment of refresher courses for senior engineers was also recommended.

Erratum

The material in the article on Thailand which appeared in *Industrial Research News* (vol. 1, No. 2), beginning with "Dissemination of technical information . . ." (p. 54) and ending with ". . . aluminium, calcium and magnesium" (p. 55), belonged to the preceding article on India; it should have followed the text on p. 52.

United Nations Experts in Industrial Development: Activities and Positions Available

In order to keep readers of Industrial Research and Development News abreast of United Nations expert activity in the area of Industrial Development, we continue a sampling of new assignments in the field, followed by a list of vacancies for which candidates are still being sought.

Two experts in the production of plastics have completed a United Nations survey of the plastics industry in Colombia: René M. A. Gazet, Director of the National School of Plastics in France; and Marius Longchal, Head of the Chemistry and Physics Department of the Institute of Technology of Morocco, and Director of the Plastic Testing Station at Marrakech. Under the guidance of Jean Delorme of France, a United Nations expert attached to the Colombian Institute for Technological Research, both specialists interviewed industrialists and government officials and visited production sites in Bogotá, Medellín and Cali. Their final recommendations are designed to increase the output and generally improve the Colombian plastics industry. The report further suggests that the Colombian Institute itself undertake industrial services and supply the industry with facilities for designing, testing and preparing moulds and similar devices necessary for producing plastic items.

A biographical note: Mr. Gazet graduated as a General Mechanics Engineer, and has held the position of Director of the Ecole nationale des plastiques in Oyannax. Mr. Longchal received his doctorate in sciences (material properties) from Paris University.

A food technologist from Canada, John Zoltan Farkas, has now arrived in Asunción, Paraguay, to join a United Nations Development Programme team, which is helping the Government establish a national Technical Standards Institute. Mr. Farkas' particular task will be to assist in organizing laboratory tests and standards as an aid in developing and upgrading products for national consumption and the import-export market. He will prepare specifications for the manufacture of new products and new industries, and in addition train local staff in testing techniques. A graduate of the Royal Hungarian Academy, Mr. Farkas has worked as research chemist with the Quaker Oats Company of Canada and as a bacteriologist with the Central Laboratory of the Ontario Department of Health in Toronto. His familiarity with Latin American problems includes positions in Ecuador with the Vegetable Oil and Fat Refining Company in Manta (Chief Chemist) and with the Industria Ecuatoriana de Leches in Quito (Plant Superintendent).

A Pakistani industrial engineer, Mohammad M. Farookhi, has been assigned as an expert to the Industrial Studies and Development Centre in Dar-es-Salaam, United Republic of Tanzania. Under the supervision of the Project Manager, Mr. Farookhi is expected to conduct a technical and economic feasibility study and to provide general counsel to the Government on technical problems and development of markets. Educated in India and in the United Kingdom, the expert is at present Project Director and General Manager of the Pakistan Industrial Technical

Assistance Centre. He has served his Government as Managing Director of the National Small Industries Corporation and as Director for Pakistan on the Governing Body of the Asian Productivity Organization, Tokyo, Japan.

Robert C. Dietrick, formerly Executive Officer of the United Nations Co-operative Inc., at Headquarters, New York, is one of several experts assigned to assist the Government of Ghana in the State Enterprises Secretariat (SES). This is a statutory body set up by the Government of Ghana exercising control and supervision over state enterprises, of which there are over fifty presently engaged in manufacturing, mining, trading, aviation and shipping. Mr. Dietrick has completed assignments in Brazil under the Alliance for Progress as management consultant, and in the United Arab Republic as financial adviser to the Economic Development Organization. He also served for three years as financial adviser to the Industrial Productivity Centre, Ministry of Industries, Government of Pakistan, under US-AID.

Maximilian M. Meeng, from the Netherlands, has taken up his post as Financial Adviser to the Council for International Economic Co-operation and Development (CIECD) in Taipei, Republic of China. As an adviser on financial policies and programmes for the promotion of small-scale and medium-sized industries, Mr. Meeng is concerned with matters such as schemes of supervised credit, e.g. hire-purchase plans for machinery; guarantee and insurance schemes to facilitate credit to small and medium-sized enterprises; and co-ordination of financial assistance (technical and managerial) for the promotion of small-scale and medium-sized industries. The expert is an economist, and since 1959 has been working in the Nederlandse Middenstands Bank, N.V. (Netherlands Bank for the Middle Classes Ltd.), Amsterdam, where he has held a senior position. He is a member of the Society of Economists in Amsterdam.

The United Nations Industrial Development Organization (UNIDO), with the financial help of the United Nations Development Programme (UNDP), is assisting the Algerian Government in undertaking industrial and marketing surveys on petroleum derivatives. To carry out this programme, Fredrik Sager, a Swedish expert, has been appointed Project Manager, chief of a team of international experts who will advise the Government in planning maximum use of its petroleum and natural gas resources for the development of agriculture, industry and export within the framework of a national plan for the economic development of the country. As Project Manager, Mr. Sager will supervise the evaluation and extension of existing studies of exportation of natural gas. In addition, he will have over-all responsibility for the operation of the Project.

Prior to serving the United Nations in 1964-1965 as an expert in chemical engineering and petrochemical industry in the Republic of China, he was a process consultant with the Kellogg International Corporation, London, England. Mr. Sager, a graduate chemical engineer from the Vienna Technical University, is a member of various chemical engineering associations in Sweden and abroad, and the author of several technical publications in his field.

Positions Available

With the exception of the Thailand post, all vacancies listed below are in institution building projects assisted by UNIDO under UNDP* finances. These projects comprise a group of international experts under the leadership of a chief expert, usually designated "Project Manager". They are intended to assist governments in the earlier stages of establishing supportive industrial agencies and institutions which will continue, after departure of the international experts, to contribute to national industrial development

*United Nations Development Programme

THAILAND: Applied Scientific Research Corporation

Post: Industrial Economist (evaluation of scientific research projects—Thailand)

Job Description: The expert would be expected to advise a group in the economic analysis and appraisal of applied scientific research results and projects, with special reference to potential industrial applications; and to train local staff to carry on this work. This group forms a part of the Applied Scientific Research Corporation of Thailand, a Government agency for undertaking scientific research.

PARAGUAY: National Standards Institute

Posts: Chemist or Chemical Engineer:

1. Construction materials
2. Hides and leather
3. Fibres and textiles

Job Description: As members of a professional group under the leadership of the Project Manager of the Technical Standards National Institute (Asunción), these experts would assist in establishing and initially operating testing and standards laboratories in these fields, and in organizing required testing to aid in the development and upgrading of these industries in Paraguay. They would also be required to prepare specifications for raw materials and products in their fields of competence and advise on industrial problems involving the manufacture and development of new industries in these fields; training of local counterpart staff would be included in their duties.

SUDAN: Industrial Research Institute

Post: Chemical Engineer

Job Description: As a member of a professional team, the expert would serve as an Institute Department Head, with operating responsibilities; assist in developing the Institute's laboratory, pilot plant, library and information services in the chemistry field; train counterpart staff and carry out other assignments as required.

Post: Mechanical Engineer (Development and testing)

Job Description: Under the leadership of the Project Manager, the expert would be expected to assist in planning and equipping fairly comprehensive physical testing and standards laboratories in the Institute, including special-

ized testing equipment (for fibres, textiles and cement), as well as universal testing machines. He would be required to supervise the installation and commissioning of the equipment, taking initial operating responsibility for the laboratory and training of local staff; to assist in the development of an up-to-date library of standards, product specifications and testing methods; and to carry out other assignments as required.

Post: Analytical Chemist

Job Description: Under the leadership of the Project Manager, the expert would assist in planning and equipping a fairly comprehensive analytical laboratory to serve the multiple needs of a variety of projects in the Institute. He would be expected to assume operating responsibility for this section of the Institute's work, advise local industrial enterprises on the installation and operation of their own laboratories, contribute to the development of the Institute's reference library, especially in his field, and participate in research projects as required.

Post: Industrial Cost Accountant

Job Description: Under the leadership of the Project Manager, the expert would be expected to serve as senior cost accountant of the Management Engineering Division of the Institute and as member of the management advisory team, and contribute to the cost accounting aspects of the Institute.

In addition, he would be required to advise local industries on the introduction of appropriate cost accounting systems and train local co-workers who would ultimately take over these services.

PAKISTAN: Pre-Investment Studies for the Promotion of the Fertilizer and Petrochemical Industries

Post: Chemical Engineer (Processing of plastics and other petrochemical end-products)

Job Description: Under the leadership of the Project Manager, the expert would be expected to compile and evaluate all existing studies relative to the plastic processing industry and the production of other petrochemical end-products in Pakistan, and carry out further studies that may be required to complement existing data.

Post: Chemical Engineer (Plastics and intermediate products)

Job Description: As a member of an international team under the supervision of the Project Manager, the expert would be expected to compile and evaluate all existing studies relative to marketing and development of plastics, raw materials and intermediate products in the country. In addition, he would be required to carry out further studies necessary to complement the existing data connected with these products.

From the Literature

Product licensing index

The New Product Centre of Radnor House in London, which exists as a clearing-house of manufacturing licences for all industries and all countries, is publishing a monthly bulletin listing new products and processes available under licence.

Subscription to the bulletin also provides a personalized advisory service on licensing agreements intended to serve industrialists seeking to produce or sell new products under licence.

The New Product Centre claims to present a complete classification of new manufacturing licences coded for systematic reference in accordance with the International Classification of Patents for Invention. The outline covers the entire range of industrial endeavour so that every class of product or process available for licensing can be located, as well as any new developments or products likely to make an impact on world markets.

Subscribers using the advisory service should be able to find a first class product or process corresponding to both their production and marketing capacity, without engaging in the lengthy process of gathering such information from exhibitions, technical journals, licence brokers and directories of manufacturing firms.

Besides selected lists of licensing opportunities, the bulletin carries articles on different legal and financial aspects of licensing, news on research and book reviews.

Address:

New Product Centre of Radnor House, London Road, Norbury, London, S.W.16, England.

Vita's publications

The Volunteers for International Technical Assistance, Inc. (VITA) exists for the purpose of helping people in developing areas of the world by applying the professional and scientific competence of its volunteer participants in seeking practical solutions to technical problems in these areas. These volunteers have started a publication programme to disseminate more widely the information collected while seeking answers to requests for help.

The following have already been published:

The Village Technology Handbook (Nos. 1 and 2) covers approximately 110 basic techniques for village improvement such as how to dig and case a well, an inertia hand pump for irrigation, and preparation of fish glue. The articles, compiled by VITA volunteers, all based on field-tested experiences, are published by the United States Agency for International Development.

The VITA Newsletter includes information on the status of current requests, unfinished problems and answers to the various questions submitted to VITA.

The VITA Reports. Each gives detailed information on one particular project undertaken by the volunteers and successfully completed.

A Background Sheet on VITA is available through the office at 230 State Street, Schenectady, N. Y. It provides information on the origin, purpose, method of work, membership, etc., of VITA.

VITA is now considering the publication of a more com-

prehensive periodical to serve as a channel of communication between the volunteers and those in need of their help.

Leather Industries Research Institute, Grahamstown, South Africa. Modern applications of mimosa extract. Grahamstown, 1965, 51 pp. illus.

This publication, made available in 1966, presents the most recent information available on wattle tannins and will enable tanners to take full advantage of the valuable and incomparable properties of this versatile vegetable tanning material.

Noting that the natural extract contains a relatively low proportion of acids and salts, it emphasizes that advantage can be taken of its greater purity, enabling the tanners to obtain by adjustment wide variations of acid content, pH value and salt content. Thus it is a most valuable and effective tanning material for both heavy and light leathers, and its advantages can be clearly seen from the comparison (in the accompanying table) of the relative effect of certain vegetable tanning extracts on leather properties.

	Plumpness	Lastometer load	Lastometer extension	Tearing strength	Shrinkage temperature
Mimosa.....	1	2	1	3	2
Chestnut.....	3	4	5	4	4
Myrobalans.....	5	1	2	2	5
Myrtan.....	4	3	2	1	3
Quebracho (sulphated).....	1	5	4	5	1

The Institute states that mimosa extract, as a readily soluble and stable compound, can be used without blending with other expensive materials. In fact, the modern tanner prefers to start with a straight mimosa extract and achieves the desired end effect by intelligent use of comparatively low-priced chemicals. Moreover, present-day production of mimosa extract has the lowest red and yellow colour units of any of the natural tanning extracts. Mimosa extract or mimosa tanned leather is very easily bleached to meet the requirements of the foot-wear industry.

The work presents theoretical aspects of tanning sole leather with mimosa extract, including traditional and modern methods; mimosa tanning of other vegetable leathers, including harness and upholstery leather, sheepskin, goatskin and bookbinding leathers; retanning of chromed tanned pelt; fundamental chemistry of mimosa extract, including methods of analysis and identification, and the results of laboratory experiments. Also outlined are the modern recommended processes considered to be of value to practical tanners.

Interested parties may obtain additional information on this publication directly from Leather Industries Research Institute, P.O. Box 185, Grahamstown, South Africa.

India. Council of Scientific and Industrial Research (CSIR), New Delhi. First get-together of research and industry, 20-21 December, 1965. Recommendations, New Delhi, C.S.I.R., 1966. 124 pp.

The question of drawing research and industry closer together for their mutual benefit and in the interest of national self-reliance was tackled by the CSIR through the organization of a "get-together" conference in December 1965. The "get-together" was attended by more than

1 000 representatives from industrial firms, research institutes and Government departments.

The discussions aimed at a clearer definition of those areas where indigenous know-how needs to be developed or supplemented for import substitutions and export promotion, and accelerating industrial development in general. "General Recommendations" were drawn up concerning utilization of research, financing and policy matters pertaining to research and development, as well as "Technical Recommendations", pertaining to different fields of industry and the economy of the country.

The meeting also identified some priority tasks in the form of national research projects having a direct impact on development. Because the reaction to the "get-together" has proved favourable, it will be followed by others to review the progress made and suggest further measures to achieve self-reliance in technological fields.

This booklet contains the proceedings of the first meeting, the final recommendations for research and development policies, and titles of priority national projects.

United Nations, Economic Commission for Europe. Economic aspects of iron ore preparation. (Sales No.: 66.II.E.6.) 280 pp.

The study consists of two parts: the first, containing four chapters, deals in broad outline with the following subjects:

Chapter I. Reasons for iron ore preparation. Properties and qualities of iron ore in relation to preparation and smelting.

Chapter II. Methods of iron ore preparation.

Chapter III. Economic efficiency of various methods of preparing iron ores for smelting.

Chapter IV. Present trends in the development of iron ore preparation techniques.

The second part of the study contains a survey of iron ore reserves and their characteristics, as well as of the state and prospects of iron ore preparation in most countries of the world.

United Nations. Report of the Seminar on Planning Techniques, Moscow, 8-22 July 1964. (Sales No.: 66.II.B.13.) 190 pp.

A study on the comprehensive system of planning existing in the Soviet Union, with a view to examining those techniques and principles of Soviet planning which might,

with suitable adaptation, be applicable to planning in developing countries under different socio-economic conditions and at different levels of development.

This publication includes the proceedings of the seminar as well as thirteen papers submitted by prominent Soviet economists and members of the State Planning Committee of the USSR. French and Spanish editions are in preparation.

United Nations, Centre for Industrial Development. Report of the First United Nations Interregional Conference on the Development of Petrochemical Industries in Developing Countries. Tehran, Iran, 16-30 November 1964. (Sales No.: 66.II.B.14.) 152 pp.

Developing countries, especially those with abundant petroleum and natural gas resources, have shown increasing interest in the development of petrochemical industries.

The field of petroleum chemistry is the subject of intensive research and development efforts. Consequently, it is undergoing constant technological change. The Conference studied substantively the technical, economic and policy aspects of the establishment and operations of petrochemical plants in developing countries.

Particular attention was given to characteristics of the petrochemical industry and prospects for its development; recent trends in research and technology in the petrochemical industry; and location factors in the petrochemical industry.

The proceedings of the Conference are scheduled for publication early in 1967.

United Nations, Centre for Industrial Development. Report of Expert Group on Second-Hand Equipment for Developing Countries, 7-22 December 1965, New York. (Sales No.: 66.II.B.11.) 24 pp. English, French and Spanish editions.

The use of second-hand equipment in furthering the process of industrialization of developing countries is a subject of considerable controversy. In certain fields and with certain safeguards, however, the use of second-hand equipment can make a significant contribution.

All aspects of the subject are thoroughly examined by the Expert Group, and recommendations are formulated for appropriate action by developing countries, industrialized countries and the United Nations.

Acknowledgements

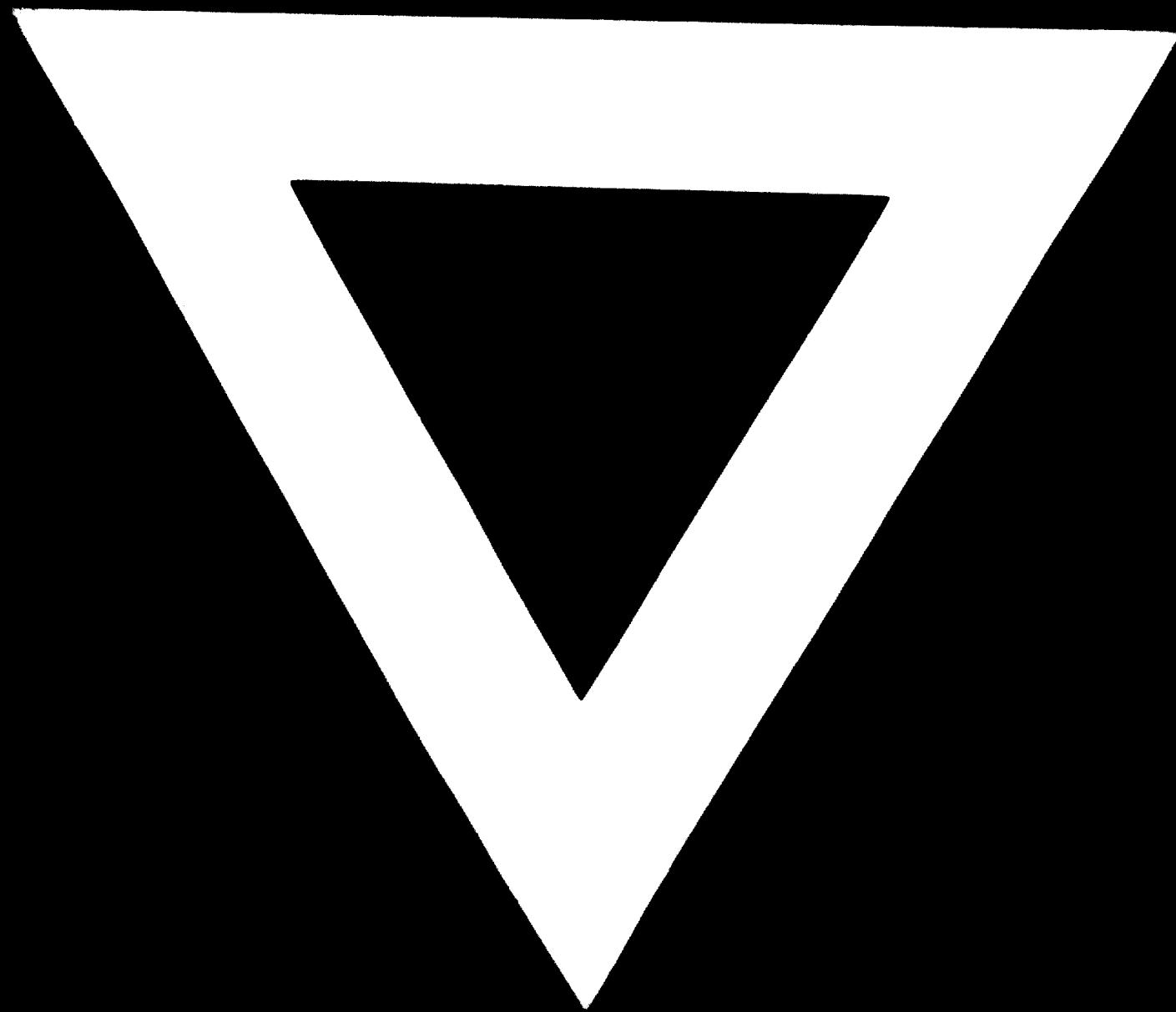
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Directory, Scientific and Technical Associations and Institutes in Israel, Tel-Aviv; Impetus, New South Wales, Australia; Industrial Research, Beverly Shores, Indiana, U.S.A.; Instituto de Fomento Nacional (INFONAC), Managua, Nicaragua; Korean Business Review, Seoul; Manufacturers' Bulletin, Sydney, Australia; The OECD Observer, Paris, France; Overseas Review, London, England; Planters' Bulletin of the Rubber Research Institute of Malaya, Kuala Lumpur, Malaysia; Report of the Department of Scientific and Industrial Research, Wellington, New Zealand; M. Richter and V. Dolezel, Research and Development Network in the Czechoslovak Socialist Republic, Prague; Swedish Steel Manual, Stockholm.

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