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THE BASES OF ARAB UNITY (1)

By

CHARLES ISSAWI

The unity of the Arabs, like that of most other national groups, is that of a people inhabiting a definite stretch of territory, bound by ties of kinship, speaking a common language, sharing common historical memories, and practising a common way of life, expressed in the form of religion and other cultural traits. As Sir Hamilton Gibb put it, the Arabs are 'a people clustered round an historical memory'. He goes on to say: 'To the question 'who are the Arabs ?' there is — whatever ethnographers may say — only one answer which approaches historic truth: all those are Arabs for whom the central fact of history is the mission of Mohammad and the memory of the Arab Empire, and who in addition cherish the Arabic tongue and its cultural heritage as their common possession.

THE ISLAMIC SOCIETY

The Arab World — to use a grandiose but widely current, useful, and revealing term — is a segment of a wider cultural area designated by Professor Toynbee as the Islamic Society, and its nature and unifying bonds can be best understood by first examining those of the larger unit. Briefly put, the unity of Islamic Society is the result of a long historical process operating on a broadly homogeneous physical environment.

The outstanding characteristic of the physical environment is its aridity. A glance at the maps prepared by Unesco shows that the bulk of the Islamic Society falls within the huge arid area stretching from the Atlantic Ocean to China. And within this region, the Arab world occupies the driest part of all. Over two-fifths of the total area of the Arab world is classified as 'extremely arid', defined as areas in which 'at least twelve consecutive months without rainfall have been recorded'; another two-fifths is 'arid', i.e. 'rainfall is not adequate for crop production'; and the bulk of the remaining part is ‚semi-arid", i.e., 'rainfall is insufficient for certain types of crops and grass is an important element of the natural vegetation unless overgrazing has replaced it with brush'. The only parts of the region which receive adequate rainfall are

(1) By kind permission of "International affairs", Chatham House, London.

generally too hilly to be suitable for large-scale cultivation, viz., the Alawite, Lebanese, and Palestinian mountain ranges, the highlands of Yemen, and the Atlas mountains and their foothills in North Africa.

The aridity of the region has important economic, social, and political consequences. In the first place, agriculture, and consequently the formation of large and stable societies, is confined to relatively exiguous strips of land lying on the windward sides of mountains or in river valleys or oases; and, whereas in humid zones agriculture and animal husbandry are integrated in a system of 'mixed farming', in the arid zone shortage of water and population pressure have made it essential to devote available land to raising food crops-or, exceptionally, high value industrial crops rather than fodder crops which, when converted into meat, have a much lower calorific content than have grains. Between the islands of cultivation lie large stretches of steppe or desert where rainfall is inadequate for agriculture but where the existence of scrub makes it possible to raise sheep and camels; this has brought into being nomadic shepherd tribes whose complex relations with the sedentary cultivators constitute one of the main leit-motifs of the region.

Another important aspect is the uncertainty of rainfall and its heavy concentration in the short winter season. The resulting great variability in crop yields makes the position of the smaller cultivators highly precarious. In addition, a series of droughts not uncommon in the region, may easily result in ruin or even famine for thousands of peasants. Hence the smaller cultivators, who are chronically indebted to landlords or city merchants, tend to lose their land and to be reduced to the status of tenants. In other words, aridity is one of the main factors making for unequal distribution of land.

The historical forces which, originating in the Middle East, have shaped the Islamic Society go back to the very dawn of history. From the earliest times the river valleys of the Nile and Tigris-Euphrates radiated their culture to surrounding lands, especially Syria. Later Egyptian, Hittite, Assyrian, and Babylonian conquests led to an interchange of customs and ideas which was greatly accelerated by the large-scale deportations and exchanges of population carried out by the Assyrian and Babylonians.

Iran brought the whole of the Middle East under its sway and gave it a common administration and an excellent system of roads. The Greek conquest gave it a common tongue which it used for 1,000 years, and a common basis of philosophy and science. Rome provided the western half of the region with a remarkably efficient administration and an incomparable system of law. After overcoming its rival, Mithraism, Christianity swept over the Ancient East, west of Iran, and established itself as the dominant religion with an organized and centralized hierarchy.

The unifying effect of Christianity can hardly be overestimated, for it was the first popular force to arise in the region, the first which struck deep roots in the masses. And, because of that, it was able to give the death blow to such old and moribund civilizations as the Egyptian and Babylonian, thus clearing the ground for the emergence of a new civilization.

The final form of this new civilization, which had been slowly emerging from underneath the layer of Greco-Roman culture which for a thousand years covered the Middle East, was provided by Islam. Pushing East, Islam once more united the destinies of Iran to those of the Fertile Crescent, and penetrated to Central Asia. But Islam did more: it finally split the Mediterranean into two halves, the northern Christian and the southern Muslim, each with its own distinctive civilization. For many centuries Asia Minor lay in the Christian half, but the Ottoman conquest brought it into the Islamic orbit; indeed it made of it, for a few centuries, the centre of Islam.

The first unifying factor, then, is the Islamic religion, the faith of the overwhelming majority of the inhabitants of the Middle East. Even the Shi'i national revolution in Iran, in the sixteenth century, did not quite succeed in splitting the unity of the Islamic world.

The second connecting link has been the Arab caliphate and later the Ottoman Empire. The latter never included Iran or Afghanistan, but, for nearly four centuries, it kept the rest of the Middle East under a single rule. Moreover the Ottoman Empire took over most of the administrative and social structure built by its predecessors, as they had done with the work of their predecessors. Hence the political, social, and even administrative continuity in the Middle East countries.

Particularly noteworthy is the existence of a legal code common to all the Islamic countries, the Shari'a or Muslim Canon Law. The Shari'a has coloured Islamic Society at least as deeply as English Common Law has coloured the Anglo-Saxon world and of all the unifying forces it is perhaps the most powerful.

The Islamic countries have another important heritage : a common scholastic culture. This culture, in which are to be found Greek, Persian, Aramaic, and other elements, was elaborated between about A.D. 800 to 1200, mainly in Damascus, Baghdad, and Cairo, and diffused throughout the Muslim world. Until less than a hundred years ago it formed the sole equipment of the educated classes, and it is still the basis of the culture of the masses. Together with religion and law it has given the Islamic world its unity and its unique character.

The medieval scholastic culture was diffused through the Arabic language, until about the twelfth century the sole medium of science, literature, and

thought. The rise of Persian, and subsequently Turkish, national literatures broke up this linguistic unity, but Arabic continued to be the language of religion and law, and abstract and scientific terms have continued to be taken from Arabic roots. It is not too fanciful to say that, if Persian has been the French or Italian of one half of the Islamic Society, Arabic has been the Latin of the whole. As Sir Hamilton Gibb put it: 'It is a strange phenomenon that while Islam began as a protest against Arab culture and tradition as a whole, by the end of this (early Abbassid) period the literary heritage of ancient Arabia was indissolubly linked up with Islam, to be carried with it to the ends of the old world.

CULTURAL UNITY OF THE ARAB WORLD

The mark which distinguishes the Arab world from other segments of the Islamic Society is the fact that, within the former, Arabic is a living language. The reason why only part of the Islamic Society has been Arabized is — in addition to the fact that religion is less earthbound and more mobile than nationalism — to be found in a combination of geographical and historical factors. A glance at the map shows that the Arab world is bounded by well defined natural frontiers: the Sahara and Indian Ocean, the Atlantic Ocean, the Mediterranean, and the Taurus and Zagros mountains. Most of these frontiers have formed very effective barriers to the permanent expansion of Arabism, though they have not prevented frequent raids and even short-term conquests. There is little Arabism, though much Islam, south of the Sahara, except along the east coast of Africa, where direct access by sea from southern Arabia was possible. Anatolia resisted all Arab assaults and was later Islamized by the Turks. Iran, although conquered by the Arabs, was not assimilated by them and soon reasserted its individuality and shook off their political as well as cultural domination while evolving its own peculiar form of Islam.

The two most porous frontiers of the Arab world have been the Nile valley and the western Mediterranean. In the first, the boundaries of Arabism are very difficult to draw, since a gradually shading continuum unites Egypt to the Negro Southern Sudan, passing through Nubia and the Arabic-speaking Muslim Northern Sudan. The western Mediterranean witnessed the establishment across its narrow straits of two flourishing centres of Arab civilization in Sicily and Spain-a phenomenon further discussed below.

Another physical feature of the Arab world may be noted- its flatness. It is worthy of note that its only non-Arabic speaking inhabitants, the kurds and the Berbers, dwell in its mountainous extremities and that the Syrian and Lebanese mountains shelter religious minorities whose attachment to

Arabism is not completely unqualified. It is significant that Ibn Khaldun entitled one of the chapters of his Prolegomena 'Arabs Conquer only Plains'.

The historical process which eventually led to the Arabization of this huge region may be described as its filling up with the sediments left by the successive Semitic waves which have broken over it during the last five or six millennia. It is believed that, in the fourth millennium B.C., a Semitic people from Arabia amalgamated with the indigenous population of the Nile valley to form the Egyptian civilization while another migration of Semites merged with the Sumerians of Mesopotamia to produce the Babylonian civilization. During the next millennium the Canaanites occupied Palestine and Syria and the Phoenicians settled on the Lebanese coast. In the second millennium B.C. the Hebrews and Aramaeans conquered Palestine and Syria and during the following millennium the Nabataeans installed themselves in those two countries. And in between the more spectacular conquests and mass migrations there were constant infiltrations from the desert into the Fertile Crescent and Nile valley.

Some of these Semitic peoples migrated farther afield, spreading their culture to a large part of the Mediterranean. The outstanding example is the Phoenicians who, either directly or through their daughter colony of Carthage, established trading ports and cities in Malta, Sicily, and southern and eastern Spain, and closely controlled the North African coast from Sirte to beyond the straits of Gibraltar. Another factor was the migration of Jews all over the Mediterranean. And, still more important, was the spread of Christianity, a Semitic religion which in some countries, for example Egypt, dissolved the old cultures and prepared the ground for the more purely Semitic Islam. The importance of these factors was revealed by the help given to the Arab invaders by the heretical Christians of Egypt, by the Maltese, and by the Spanish Jews.

It is surely not fortuitous that, at its height, the Arabic-speaking Islamic civilization coincided almost exactly with the limits of Semitic culture. Its north-eastern borders were the Taurus-Zagros mountains, which had always formed an effective barrier to Semitic expansion, and its north-western frontiers were those Mediterranean lands, Sicily, Malta, and south-eastern Spain, which had been most deeply impregnated with Semitic influences. Its spread along the eastern African coast was preceded by extensive trading between that region and southern Arabia in pre-Islamic times, accompanied by some migration.

The Arab conquest, the latest of the Semitic invasions, was facilitated by a long period of infiltration which led to the establishment of the Arab

Kingdoms of Ghassan in Syria and Lakhm in Iraq. It was followed by innumerable migrations of tribes into these and other neighbouring countries. As a result, Syria, Iraq: Transjordan, Palestine and, to a lesser extent, Lebanon were, over the course of centuries, markedly Arabized in race and completely Arabized in language. Egypt was much less affected ethnically, since the Arab conquerors either lived in the cities or camped on the fringes of cultivation; moreover the extreme aridity of the Egyptian desert (even judged by Middle Eastern standards) makes it incapable of supporting a large nomadic population: nevertheless, Egypt has been linguistically and culturally Arabized. In North Africa, conditions vary, Libya and Tunisia being much more Arabized than Algeria and Morocco. In the latter, the Berber language and Berber culture are still very powerful, and it is possible that they would still be dominant but for the eleventh-century invasion of the Banu Hilal and Banu Sulaim, who caused much havoc and set North Africa back in its cultural development but printed on it a deep Arabic stamp.

The degree of cultural unity attained by the Arab world in the Middle Ages may be judged from the career of Ibn Khaldun, who passed with the utmost ease from North Africa to Spain, Egypt, and Syria, occupying in each place an important political or judicial position. Similar examples could be quoted by the dozen.

POLITICAL DISUNITY OF THE ARAB WORLD

The political disunity of the Arab world is no less evident than its cultural unity. Following the breakdown of the Omayyad Empire, it rapidly disintegrated into separate and hostile entities. For four centuries the Ottoman Empire imposed a large measure of unity but this was succeeded by total disintegration brought about by the Treaty of Versailles. Today, there are no less than eight sovereign Arab States and, including the Sudan, the two zones of Morocco and Tangier, twelve protected areas or colonies.

This disunity is to be explained by geographical, historical, socio-economic, and political factors. First of all, there is the great length of the Arab world. From the western corner of Morocco to the eastern tip of Arabia it stretches across 70 degrees of longitude and has a maximum length of over 4,300 miles. This length is not matched by corresponding depth since the vast desert spaces are mainly empty. In terms of population—a more significant criterion than area- the Arab world takes the shape of a very long, extremely thin, sprawling band.

To these defects of structure must be added those of texture. The Arab world has been aptly likened to an archipelago, and a glance at a vegetation

map shows by what vast barren spaces the small islands of cultivation and settlement are separated. Now an archipelago can be held together, but only by a power which commands the seas, and similarly the Arab world was held together only by such a strong State as the Omayyad Empire, which drew upon the enthusiasm and energy of the initial Arab conquest. At best of times, a series of discrete centres such as those inhabited by the Arabs is much more difficult to unite than a continuum of habitation, such as France or England.

The difficulty is aggravated by inadequate communications. Not only only are the density of roads and railways, and the relative number of motor cars, radios, and telephones, lower than in more advanced countries but existing road and railway networks are not always adapted to local needs. As in other underdeveloped areas, much of the transport system was built by foreigners and was designed primarily to facilitate export trade: in doing so, it undoubtedly advanced the development of the region, but did not do much to draw together its constituent parts. In spite of the progress of the last fifteen years, communications between most Arab countries are either poor or roundabout or non-existent. It should be added that the facts mentioned in the two preceding paragraphs stand in the way of the development of the transport system. For other things being equal, it is easier to provide a compact area than an equal elongated area with an adequate rail and road network. And, secondly, it is expensive, and sometimes prohibitive, to build a railway (or even a road) between two productive centres separated by a large empty space: a good example is the absence of the often mooted Baghdad-Damascus railway.

These geographical factors only partly explain the lack of economic and social integration. Two different aspects may be distinguished: lack of integration within each Arab country, and lack of integration between different Arab countries. As regards the first, low production, inadequacy of transport, and general underdevelopment mean that a large proportion of the population lives in a subsistence economy, retaining the bulk of its produce for its own consumption and resorting to the market very seldom, whether for purchase or sale. In other words division of labour — one of the most powerful forces making for social integration — has been carried out to only a limited extent. It may be added that in recent years economic development has been drawing the inhabitants of the Arab world into themarket economy at an accelerating rate.

Three other social factors may be mentioned in this context. In the past, the distinction between town and country was sharper in the Middle East than in Europe and relations between the two were looser. Although this state of affairs is also changing, it has left its mark on the mentality of the Middle Eastern peoples. Secondly, there remains the great gap between the

nomadic and settled populations. In all Middle Eastern countries nomads continue to lead a life separate from that of the rest of the community. Attempts are being made to integrate the nomads, by enforcing the authority of the State, by providing some health and educational service, and by encouraging settlement, but so far only a limited measure of success has been achieved. Lastly, there are the deep cleavages between religious communities. Owing to the intensity of the religious and denominational feeling of Middle Easterners, this factor has a more divisive effect than in Europe or the United States.

As regards the second aspect, namely, the lack of integration between Arab countries, it may be attributed to inadequacy of communications, low of production, the large part played by foreigners in the economic development of the region and the political history of the last seventy years. The first two factors need no elaboration; the lack of a surplus for exchange and of the means to transport this surplus largely account for the very low level of trade between Arab countries. Less obvious, but hardly less important, has been the fact that the economic development of the region was largely carried out by foreign capital and enterprise. The economy of each Arab country was thus geared to that of the industrial complex of Western Europe. Each concentrated on one or two agricultural goods, raw material exports, receiving in exchange the manufactured goods, raw materials, and foodstuffs which it needed. One effect of this phenomenon was that economic progress remained strictly localized within countries, such as Egypt; or even within subdivisions of countries, for instance the palm groves of Iraq and the mining districts of North Africa. The only important exception has been the petroleum industry of Iraq and Arabia. This generated a huge income in countries with very few complementary resources capable of absorbing that income; it also involved the laying of pipelines to the Mediterranean coast; as a result, some income has spilled over into the neighbouring countries, particularly Lebanon.

The general development and the improvement of transport following the first world war should have led to a greater measure of exchange between the Arab countries. But, precisely at that moment, formidable barriers made themselves felt, in the shape of new political frontiers. The British, French, Spaniards, and Italians divided among themselves Arab Africa, and the British and French, Arab Asia. Different currencies, linked to those of the Metropolitan Powers, circulated in the various Arab countries and customs barriers impeded trade between these countries. Nor did matters improve with the attaining of independence by the eastern Arab States since, for a long time, they continued to practise economic nationalism. Indeed, in certain respects, there was further disintegration „As each country gained political independence, it sought to promote its economic well-being through policies

designed to develop its own resources as fully as possible. Preoccupied with its own economic problems, no government has modified either its course of action or its plans in the light of developments in other parts of the region. This tendency continued after the second world war. Under the mandates there were no tariff barriers between Lebanon, Palestine, Syria and Transjordan, but the achievement of independence broke the monetary and fiscal ties holding some of these areas together. In 1950 the customs union between Lebanon and Syria was brought to an end.

The economic disintegration brought about by foreign rule was accompanied by political and cultural disintegration. Each country, absorbed in its own struggle against a specific foreign government, tended to isolate itself from the others. In each, different foreign traditions and methods began to implant themselves- French in Syria and Lebanon, British in Iraq and Palestine, Italian in Libya, Spanish in Morocco. Education in foreign schools and universities produced very different values, prejudices, and ways of thought. Not least important, in each country dynastic, political, and administrative vested interests arose, whose position stood to suffer from a merger of their country in a bigger whole.

As a result of all these natural and man-made barriers and partitions when, both under the influence of European ideologies and in obedience to its own laws of development, the Arab world began to experience nationalism that feeling took two main forms. On the one hand there was pan-Arabism, often confused or intertwined with pan-Islamism, a movement aiming at uniting all Arab countries. And on the other hand there were various local movements, which sprouted wherever there was a sufficiently large physical basis and population for them to take root. The most noteworthy of the latter are Egyptian, Iraqi, Moroccan, and Tunisian nationalism, all of which correspond to old and well defined units. In the Levant, nationalism is more ambiguous and complex, because of the broken nature of the area and of the various cross-divisions within it; four main trends may be discerned: Syrian nationalism in its narrowest sense, corresponding to the present borders of the Syrian Republic; its counterpart, Lebanese nationalism; Greater Syrian nationalism, which aims at the union of geographical Syria, i.e. Syria, Lebanon, Jordan, and Palestine; and the Fertile Crescent movement, which seeks to unite geographical Syria and Iraq. It may be mentioned that, up to the present, local nationalisms have been more vigorous than pan-Arabism. This is not surprising in view of the fact that they have a more solid historical base, correspond to strong traditional parochial sentiments, are backed by powerful dynastic, political and economic vested interests, and offer to aspiring statesmen and reformers an outlet for immediate practical work.

PROSPECTS OF ARAB UNITY

At this point it might be concluded that the centrifugal forces in the region are so strong that Arab unity is a dream impossible to fulfil. But such a judgement would be erroneous, since it ignores the no less powerful centripetal forces.

Of these the first, and most binding, are the cultural factors mentioned above, the community of language, religion, and way of life. It is doubtful whether the pull of religion within the Arab world has appreciably weakened in recent times. That of language has, if anything, increased; for with the spread of literacy the number of those who have access to classical Arabic, the lingua franca of the Arabs, is rapidly growing: and as more people read the Arabic classics, as well as contemporary works published in other Arab countries, their sense of kinship with the inhabitants of other parts of the Arab world becomes stronger and stronger. This is being reinforced by the speedy development of transport and communications between Arab countries, especially the radio and cinema.

The impact of recent economic and cultural development on the Arab way of life has been more complex. Its initial effect was that some parts of the Arab world, notably Egypt and Lebanon, pulled so far ahead of the rest that they came to feel that they lived in different worlds. More recently, however, the situation has begun to change. The main factor has been the discovery of oil, which is enabling Iraq and the Arabian peninsula States to draw abreast of the more advanced countries. Another factor which may eventually work in the same direction is the heavy capital investment now taking place in North Africa.

Economic development is also acting in another way to draw the Arab countries together. As they advance beyond the level of a subsistence economy, the diversity of their resources stands more clearly revealed, and with it the possibility of complementarity and the necessity of cooperation. Thus, to take only the eastern Arab countries, the oil-producers can offer fuel and capital, Iraq, Syria, and the Sudan have vast land and water resources, Egypt has industrial and agricultural skills, and Lebanon can provide unmatched business enterprise, as well as the most pleasant climate to be found in the region. The realization of the possibilities offered by co-operation has, very recently, resulted in the taking of some noteworthy measures, notably a payments and preferential customs agreement which having been ratified by four States, entered into force in 1953. Other very important proposals include an Arab Development Bank, whose capital would be subscribed to by all Arab States, an Arab Navigation Company, the reconstruction of the Hejaz

railway, and the building of an Arab highway linking Kuwait, Saudi Arabia, Iraq, Jordan, Syria, and Lebanon.

Lastly, there are the political factors. Arabs have begun to realize that, although their individual States are insignificant, a combination of well over 60 million persons, controlling the southern half of the Mediterranean and both its eastern approaches, as well as almost half the world's oil deposits, could — provided its natural and human resources — come to count in world affairs. This realization led, in 1945, to the establishment of the Arab League. So far, the League has impressed outsiders more with its weakness than with its strength, but its very survival is a triumph for pan-Arab public opinion which carried with it the reluctant governments of the Arab countries. And it must not be forgotten that, although its political achievements have not been brilliant and its real interest in economics is very recent, it has done some good work in the cultural field. The latter includes much interchange of teachers as well as the holding of inter-Arab congresses of lawyers, doctors, engineers, educators, etc., all of which is helping to bring the countries closer together.

It is not the purpose of this essay to predict whether the centrifugal forces will overcome the centripetal. On the one hand political and economic self-interest — in some countries even survival — call for integration in a large unit. On the other hand there are well-entrenched vested interests and strong parochialisms; fomented wherever possible, by foreign Powers. And with every day that passes local vested interests gain in strength; to take only example, the establishment of identical industries such as cotton textiles and sugar refineries in Egypt, Lebanon, Syria, and Iraq has brought into being one more opponent of integration. It is thus clear that the unification of the Arab countries, if it is to come, will have to be brought about by the conscious and sustained efforts of the Arab governments and peoples. The blind forces of geography, the impetus of history, and even the cohesive ties of language and culture do not, by themselves, automatically ensure unity. This is not the place to discuss the measures required for unification, but it may be repeated that what is needed is not only integration between the various countries but also integration within each country. In other words unification requires, among other things, a far-reaching transformation designed to democratize Arab society, develop its natural resources, and raise the economic, social, and intellectual level of its members.

It may be pointed out, in conclusion, that unification is not necessarily an either-or choice. Between the two extremes of complete unity, which at the present time is not practical, and complete independence for each State, which is clearly undesirable, lie several possibilities. Some of the smaller

countries may band together in a federation and the units so established may enter into confederal relations with other Arab units. For, to return to the starting point of this essay, although the term 'Arab World' is rather grandiose it does reveal the fact that the entity so designated is vast and complex. And it is unlikely that the solution appropriate for such an entity is a simple cut-and-dried formula borrowed from foreign cultures with a vastly different political experience.

MINING POLICY AND LEGISLATION IN EGYPT

By

FAROUK EL BAKARY

Secretary General Chamber of Mining and Petroleum Industries.

THE MINING POLICY

The mining policy in any country consists of the agglomerate of measures and steps adopted by the State in order to stimulate the exploration, prospection and exploitation of raw mineral ores, in solid or liquid form, as well as other sources of mineral wealth.

The object of this policy is either to meet the requirements of local consumption from such raw minerals for local industry, if such industry existed, *or* to export them in order to make use of their price for the purchase of capital goods necessary for the establishment of such industry, or industries, as the country may be in need of, or indispensable for the consolidation of existing industries.

In both cases the general target of the mining policy is achieved by the augmentation of the national income and the raising of the country's standard of living.

Measures usually adopted by Governments to stimulate The Exploration and Prospection of Mineral Ores are generally comprised in the following :

1. — *Technical and Scientific Devices* of which the following are the most important :

a) Detailed topographic and geological maps of the country on a reasonable scale.

b) The study of new developments with regard to the exploration, prospection and exploitation of minerals and the placing of such data at the disposal of explorers, prospectors and those engaged in the mining industry.

c) The evaluation of mineral wealth resources.

d) The creation of a generation of trained mining engineers, geologists and technicians.

II. — *Legislative and Administrative Measures*, mainly :

a) The promulgation of laws capable of encouraging the exploration and prospection of mineral ores and of guaranteeing the right of exploitation to explorers and prospectors.

b) The provision of an efficient machinery capable of implementing such laws.

III. — *Financial Measures*, chiefly :

a) The allocation of funds necessary for the construction and pavement of roads and highways and the improvement of means of transport between the various mining districts on the one hand, and between those districts and the rest of the country on the other.

b) The appropriation of funds for the exploration of sub-terranean waters and the digging up of adequate water-wells for the provision of drinkable water supplies.

c) The consideration of the possibility of tax exemptions, the encouragement of special reserves and the application of short-term redemptions of capital invested in this industry.

d) The exemption of machinery, tools and equipment indispensable for prospection work from customs dues when imported.

e) The establishment of the principle of the State participating in the expenses entailed by prospection, the advancement of loans to prospectors in the event of a mineral ore being found in quantities enough to permit its exploitation and finally the creation of a system whereby the State can stand surety to individuals when borrowing loans from banks.

f) The contribution of grants to existing industries dependent on the utilisation of mineral ores produced locally, within reasonable limits, and the encouragement of the creation of such industries.

Owing, however, to the conditions of the mining industry in Egypt we propose now to discuss at length each of the measures to which allusion has just been made.

I. — *Main Technical and Scientific Devices :*

a) **The preparation of a detailed geological map of the country on a reasonable scale.**

The competent Department in every country usually undertakes the drawing of topographical maps of the country on a reasonable scale. These are the preliminary steps for the deliniation of geological surveys. Then follows the preparation of geological maps which indicate the seats of mineral ores. The next step is mineral prospection which is conducted with the purpose of ascertaining the economic potentialities of such mineral ores. Later, reports are drawn up, accompanied by maps, and are published for the guidance of those engaged in mining work so that they may continue their detailed prospection with a view to the exploitation of such wealth if this seems likely. Proceeding along those lines the Government has been wont to despatch seasonal geological and prospecting expeditions, to undertake such researches.

Prior to the Revolution, however, the number of those expeditions was very small owing to meagre funds allotted for the purpose in the budget of the Department responsible for this work. The result was that researches proceeded very slowly and were unable to keep pace with the desired industrial progress.

The Government has given every attention to this question. Apart from increasing the number of missions, it has appropriated relatively large funds for this purpose. The Government machinery responsible for such researches consequently became alive. It is however, noted that there is still room for more expenditure and effort to be exerted in this respect, until the operations referred to have been expanded on a large scale. This, we believe, is also the objective of the Ministry of Industry at present.

b) **Branching from this is the question of adopting modern methods in the preparation of topographic maps and the prospection of the country's mineral wealth.**

These methods are: aerial survey and geophysical research.

AERIAL SURVEY

Aerial survey is used for the preparation of topographical maps on various scales suitable for various lines of research, at great speed. It is also used as an aid to detailed geological survey, for instance, the deliniation of geological structures and their speedy completion.

Some Mining and Oil Companies in Egypt have actually made use of this modern aid in their topographic and geologic surveys.

It is hoped that the Ministry will be able to provide such apparatus as would make aerial survey possible and render it easy to prepare survey

and geological maps therefrom. The mining concern believes the Egyptian Air Military Surveying Service is a good nucleus which, in collaboration with the Survey and the Geological Survey Department, can provide the desired apparatus.

GEOPHYSICAL RESEARCHES

Geophysical methods are either terrestrial or aerial, i.e. they are either performed on earth or from the air. The former method is used for the exploration of oil. This naturally is not the place for a detailed description of the various ways in vogue in this respect. Suffice it, however, to say that Oil Companies have been using such methods on a very large scale, particularly in areas thickly laden with soil, which obscures the geology of the district. The latter method, on the other hand, is used for mineral research in particular, and is varied in kind, the most important being the magnetic method which is employed for the exploration minerals possessing magnetic propensities, such as iron. The advantage of geophysical explorations is the speed with which the desired results are obtained and the ascertainment of the mineral ores hidden under the soil as well as their depths below the surface. This method, moreover, saves a great deal of effort, time and money.

c) Evaluation of the Resources of Mineral Wealth.

The application of modern scientific methods for the exploration of the resources of mineral wealth and conducting geological and mineral surveys in various districts, make it incumbent to determine the economic possibilities of the explored mineral ores.

d) The Training of Well Equiped Mining Engineers, Geologists and Technicians.

No mining industry can hardly be expected to flourish in a country where there is not a sufficient number of mining engineers, geologists and various other technical personnel necessary for exploration, prospection and exploitation operations as well as for mineral and geological research bearing upon such operations. It is therefore necessary that an adequate number of these various categories of men should be procurable within a reasonable period.

Until such men have become available, however, it is necessary to secure the aid of foreign experts and foreign personnel. This indeed has been the policy of many countries, even those which rank in the forefront in the field of industry. Russia, for instance, had to enlist the support of foreign experts

for the implementation of her five-year mineral plan which followed the latest World War.

India, Pakistan and Ethiopia follow similar lines in the planning and execution of the five-year plans, which each has made for the development of her mining industry.

Several countries are also paying great attention for the formulation of syllabuses and creation of institutes for the graduation of the technologists previously referred to and are correlating the need of industry for each category of technologists with the activity of each type of institute, the academic standard it ensures for its graduates and the practical training it provides for them.

The Egyptian Government is now aware of the necessity of adopting similar measures. A mining department was consequently set up in the Cairo University. Not many students, however, have sought admission to this department. Besides, several students in other Universities have been barred from transferring to this mining department by virtue of the vigorous restrictions imposed upon such transfer.

As a result, the number of graduates leaving this department each year has become much less than the requirements of the Mining Companies and the Government Departments alike. Engineers, other than mining graduates, had thus to be appointed to make up for this deficiency, though their qualifications were not such as to meet the requirements of the mining industry in particular.

Last year, the Chamber submitted to the Minister of Education, in his capacity as President of the Universities' Supreme Council, certain practical suggestions in this respect. He readily agreed to some and it is to be hoped that the rest will find their way towards implementation in the near future.

This important question leads to another, which is no less important, namely the question of the employment of foreign experts and technicians in the Mining Companies of Egypt owing partly to the scarcity of their Egyptian equivalents and partly to the lack of adequate knowledge and experience on part of local technologists.

It may be remarked in this connection that the tendency of the Egyptian legislators in general is based on the assumption of minimising the relative numbers of foreign personnel and workmen in the employ of Joint Stock Companies in general, Sociétés en Commandites par Actions and Limited Liabilities Companies, as was prescribed by the Law relating to such Companies (Law No. 26 of 1954). The Minister of "Commerce and Industry" was, however, empowered to exceed these prescribed limits in the public interest or whenever the need for this exception should arise. The Law stipulated

that those limits should be observed in particular in all mining establishments. (Whether such establishments were Partner Companies or Capital Companies - Cp. Article 40, Law No. 66 of 1953 and Article 22 of Law No. 86 of 1956).

The employment of foreign technicians in mining establishments has therefore been kept within the limits prescribed by the Law, with respect to both their numbers and total salaries as compared with those of the Egyptian employees. Nor have those establishments spared any effort, on their part, even to forego those limits, in their attempt to egyptianise a larger share of their posts, whenever they were able to find in the labour market any Egyptian whose qualifications and experience entitled him to replace a foreigner, whether such nominee was recruited from within or without the establishment concerned.

During the past two years, however, there have been a number of difficulties, administrative rather than legislative, in securing the services of an adequate number of foreign technicians necessary to meet the demands of mining operations and help stimulate the prospection and exploitation of mineral ores. This led to yet another difficulty which sprang from the question of the proportionate remittances which those technicians were allowed to send, out of their salaries and remunerations, to their families and dependents abroad.

II. — *Legislative and Administrative Measures:*

a) **The promulgation of laws capable of encouraging the exploration and prospection of mineral ores and of guaranteeing the right of exploitation to explorers and prospectors.**

Modern mining legislation in all civilised countries tends at present to regulate the relation between the State, on the one hand, and explorers, prospectors and exploiters on the other, on the following bases :

1. — *Unconditional open rights for exploration.* This is rendered necessary by three considerations. In the first place, it is the public interest that every mineral in the soil should be explored. In the second, such exploration yields quicker results and entails less expenditure when undertaken by individuals than when undertaken by the State. In the third, the State's sovereignty over its territory ensures for it, in the meantime, adequate control of the exploitation of any explored mineral with regard to its economic or strategic importance.

2. — *The insurance of exploitation rights to explorers in the event of a mineral ore being found in quantities sufficient to permit its exploitation*, by

granting him a priority right to obtain a mining lease on application. (Or by granting him a financial reward in case he does not possess the necessary means of such exploitation). He should also be ensured of uninterrupted exploitation, within the limits prescribed by the law, for a reasonable term, without being exposed to sequestration or seizure.

At all events, however, this should not infringe the State's prerogative to restrict such rights in the case of war or other emergencies or in respect of certain raw minerals defined by the mining legislation for a temporary period. A fair and equitable compensation in this case should be given to the exploiter who should have the right to make representations or appeal to the Court for the protection of his vested interests.

3. — *Relaxation of financial obligations levied by mining Legislation on prospectors and exploiters in respect of their mining activities*, such as fees, royalties and rentals.

4. — *Simplification of procedure for the grant of prospecting licences and mining leases and their prompt issue.*

The Revolution Government has indeed given full attention to the necessity of the enactment of suitable mining legislation in Egypt. It has accordingly twice amended the provisions of the Law on Mines and Quarries (Law No. 136 of 1948), the first, by virtue of Law No. 66 of 1953 which was issued in February, 1953 (relating to ore deposits, combustibles and quarry material); the second by virtue of Law No. 86 of 1956 which came out in March, 1956 (dealing with ore deposits and quarry material). The latter upheld most of the general principles previously referred to.

b) The provision of efficient machinery for the implementation of those laws.

There can be no vestige of doubt that the spirit in which any given law is carried out is no less important in effect than the benefits which the provisions of that law claim to uphold. Texts are usually general in nature and as such are likely to permit of various interpretations, however definite as regards their object the legislators may have been at the time the law was framed to meet certain circumstances prevailing then. The whole matter therefore will depend upon the extent to which the officer charged with the execution of the law can appreciate those circumstances and can appraise the situation without being persuaded by any external influence, and upon the extent of security

he feels in the discharge of his duties according to the dictates of honesty, logic and sound understanding.

This being the case, many countries, in the re-organisation of the machinery supervising the implementation of mining legislation specifically, have been very careful to observe the following principles :

1. — The separation of the machinery concerned with research and planning from that concerned with control and execution, with a view to bringing about some form of specialisation in respect of each.

2. — The provision of the Department concerned with execution with an adequate number of officials capable of implementing the laws and regulations relating to mines and quarries. Their numbers should be commensurate with the volume and nature of work entrusted to them.

3. — The elevation of the scientific and material standard of the members of this machinery through extended studies and training in modern scientific and administrative methods, and the ensurance of profitable remunerations and salaries which would put them on par with their counterparts in the employ of companies and other private establishments.

4. — The supply of a sufficient number of legal officers in the service of this Department in order to ensure quick decision over disputes arising from the implementation of laws and regulations relating to the mining industry. Such disputes are naturally of every-day occurrence and are so many that they do not permit of any delay on procrastination. In selecting such legal officers care should be taken that they are recruited from among those who have had reasonable experience in giving legal advice on such matters.

We however, believes that there is plenty of room for reform in this direction, especially that the re-organisation and consolidation of the Department of Mines and Quarries was envisaged at the time the latest mining legislation (Law No. 86) was in the course of enactment.

III. — *Financial Measures :*

a) **The allocation of funds necessary for the construction of roads, the pavement of highways and the improvement of means of transport between the various mining areas, on the one hand, and between those areas and other districts, on the other.**

Activity in remote and barren areas for the exploration and prospection of minerals depends entirely upon the accessibility of those areas and the extent

to which inter-communications between them and contact with the other parts of the country, are available.

No doubt the construction of highways and the levelling of rugged roads are among the most important improvements for attracting explorers and prospectors, more so in the case of such of them as may be unable financially to undertake such operations themselves in those remote areas.

The advantages which accrue from the construction and improvement of roads and highways are not, however, confined to the mere attraction of explorers and prospectors. They are also instrumental in the stimulation and development of prospection and exploitation operations by the facilities they provide for the transport of necessary machinery and equipment at reasonable cost and with appropriate speed. They further help the easy marketing of mine products within the boundaries of the country and their facile transport either to industrial districts or to exportation ports.

The Permanent Council for the Development of National Production has already made recommendation for linking up mining areas with each other, on the one hand, and with the mainland, on the other, through the construction of a network both of railways and paved highways and roads.

Save for the Kena-Kussair and Kena-Safaga roads, the road extending from Suez to Ghardaka in the Eastern Desert and the road from Bir Assal to Balaim in Sinai, there are no other paved roads for the benefit of mining areas. Mining Companies in the Red Sea area therefore compelled to depend for the equipment they require on the irregular services of coastal ships, few in number as they are, which belong to some Navigation Companies in Suez and Port-Said. Some Mining Companies are even constrained to secure their drinkable water supplies through the services of coast tankers over a distance of more than 1000 kilometres both ways.

b) The allocation of funds necessary for exploring subterranean waters and digging up water-wells for drinkable water supplies.

Drinkable water supplies are one of the most essential items for work in remote and desolate mining areas and are usually secured either through the condensation of salt sea-water or through digging up sufficient water-wells, unless it was possible to convey fresh waters from the nearest canal and pump it up to the mining area.

Owing, however, to the high cost entailed both by condensation and by the conveyance of fresh water through pipelines, the digging of water-wells is therefore considered the least expensive method.

The State usually undertakes the task of exploring subterranean waters and of making maps which are put at the disposal of those prospecting for

raw minerals of frequenting deserts in order to encourage them to begin prospection in the areas containing such waters and dig water-wells necessary for their work.

c) **Consideration of the possibility of tax exemptions.**

All industrial countries are now-a-days inclined to adopt a number of measures calculated to consolidate their national economy through the encouragement of new enterprises or the expansion of existing ones which all go to help achieve this objective. Most prominent among those schemes and projects is the prospection and exploitation of raw minerals.

Among the measures taken for this purpose, so far as those operations are concerned, is exemption of mining enterprises from income taxes, from taxes on commercial and industrial profits, taxes on movable property and even from excessive profits taxes, within certain rules and for limited periods, with the object of relieving as much as possible the burdens of those engaged in such projects and encouraging them to proceed with their undertakings.

Exemption from taxes may be total or partial, and may be fulfilled through various channels — permission to maintain reserves for the continuous preservation of the mine; deduction of prospection expenses from profits made during the year in which prospection operations took place; or finally permission for the redemption of part of the fixed capital (or most of it in some cases) over a short period, extending sometimes to five years, instead of the ordinary term of redemption. The object of all these measures, as explained before, is to consolidate the financial status of industrial establishments and remove obstacles likely to impede the financing of their schemes.

The Revolution Government has issued Law No. 430 of 1953 relating to certain tax arrangements deemed necessary for the consolidation of national economy. The Law provides for possible exemption from taxes on commercial and industrial profits as well as on movable property with regard to Joint Stock Companies and Sociétés en Commandites par Actions engaged in certain enterprises of which mining is one. It was noted, however, that the provisions of this law do not apply to Partnership Companies which undertake a substantial share of mining enterprise and that, more-over, the exemption is not binding but optional, being left to the discretion of the Commission set up for this purpose in the Ministry of Finance and Economy.

d) **Exemption of imported machines, tools and equipment indispensable for prospection and exploitation from Customs Dues.**

Such exemption is regarded as one of the main hinges of any industrialisation policy. It helps to provide equal circumstances between goods locally

manufactured and identical goods manufactured abroad in respect of costs and expenses or, at least, helps to bring about a relative reduction in the cost of local goods.

Egyptian industry, including the mining industry, is now enjoying this benefit, except for a few necessary equipment and raw material, such as explosives etc: but it is hoped that such items will be secured from local markets at reasonable prices.

e) **Grant of loans to prospectors for prospection and exploitation work under State Guarantee to Banks.**

The financing of projects is regarded as one of the most serious difficulties which face those prospecting for mineral ores, particularly in the case of individuals and in the case of those who desire to exploit the mine they discover.

Most industrial countries have consequently resorted to insurance systems, of both medium and long terms, for the benefit of the mining industry, whereby technical experience, tools and funds necessary for prospection and exploitation purposes are provided either by the State itself or through the agency of special organisations before which the State stands surety for any loans contracted by individuals engaged in this industry.

An insurance system of this kind does not, however, exist in Egypt. Nor is the Industrial Bank able, under its present regulations, to advance such loans. This makes it imperative to consider the possibility either of modifying those regulations or setting up an independent body which would undertake such transactions.

f) **Aids to industries based on use of local raw minerals.**

The ensurance of regular marketting for prospected raw minerals as well as their exploitation and industrialisation are no doubt among the strongest incentives both to individuals and to Companies engaged in this field. Most industrial countries, therefore, tend to study the possibility of setting up various industries for the utilisation of existing raw minerals for the purpose of local consumption and for meeting the demands of foreign markets. Such industrialisation should, in the meantime, ensure the greatest possible increase of national income and a definite improvement in the country's trade balance. For this purpose, the State will adopt every possible measure at its disposal for stimulating such industries whether by direct financing, total or partial, or through granting aids to private establishments engaged in such industries according to the relative importance of each industrialised metal.

This does not mean, however, that an industrialisation of all prospected raw minerals is either feasible or desirable in all cases. The planning of a country's foreign trade demands very often that such of its raw minerals as cannot be industrialised or are industrialised but on a non-economic basis or cannot find adequate sale when manufactured should retain their customers and markets abroad in their raw state, and producer goods necessary for the establishment of other industries or the consolidation of existing ores should be imported in exchange.

This inevitably leads to the discussion of another point, at present wrapped in ambiguity, relating to the policy of exporting the raw minerals extracted from Egyptian mines.

At one time the view was advanced that such raw minerals should not be exported and should instead be kept for utilisation by present or future industries based on a large scale consumption of such minerals and likely to exhaust all the available deposits of the country.

If this view is scrutinised from a purely Egyptian perspective, however, it will not be difficult to say that Egypt, though ancient in history, is new to industrialisation. The Revolution Government is now exerting every effort to industrialise the country with quick pace. As a result Egypt is in great need of foreign currency for the purchase of capital goods indispensable for the development of local industry. But how can she secure such currency unless she exports surplus supplies not required for local industry ? In fact, by exporting such supplies she would be, in effect, converting her surplus raw minerals into capital goods of a permanent nature which would bring a great deal of prosperity to the country.

Then again, what do the disciples of this school of thought, which upholds this non-export theory, think of our present unfavourable trade balance and the part which the Minister of Commerce is so admirably undertaking to make this balance even ?

Moreover, the exhaustion of Egyptian raw ore deposits will naturally depend on the extent of intensity with which geological and mineral researches are conducted. It is an established fact to those engaged in mining that, with the exploitation of a certain mineral, efforts should always be made for the exploration of new resources of that mineral, either in the same area or in other areas, so that the reserves at the disposal of the country of that particular mineral should remain at a fixed, if not a higher, level for the longest possible period. It is on account of this that those engaged in the prospection of mines are constantly making applications for prospection licences, or protection leases for the same mineral in adjacent areas. The only difficulty that confronts them in this respect is the prolonged indecision which charac-

terises the attitude of certain Government Departments towards such applications. If thus the country's reserves of mineral deposits become less, the fault will lie in the fact that the Government machinery is too slow to keep pace with economic developments.

With a view to further elucidation of this point, it may be well to refer to the example after quoted by the disciples of the non-export theory, namely the policy of stock-piling adopted by the United States. Yet we should bear in mind that, in order to borrow a system from one country to another, it is necessary to understand the conditions and circumstances prevailing in each. The United States thus utilises all her raw mineral products for her local industries and is therefore constrained, in view of the extremely high level of her industries have reached, to import and store, vast quantities of minerals to meet the demands of her factories in cases of emergency. Moreover, the United States does not import but exports capital goods, whereas Egypt, unlike the United States, is still an industrially awakening country, where no industries have yet grown on a scale large enough to exhaust some of her mineral deposits. She possesses large surplus of her own mineral produce and is in the meantime in dire need of capital goods imported from abroad in exchange for her surplus mineral supplies.

What, moreover, can be the view of the disciples of this school with regard to the export of oil from Iran, Irak, Saudi Arabia and Venezuela, vital as this item is for all industries ?

Having said so much about the non-export theory we may return to our discussion of the industrialisation of mineral deposits exploited on a large scale in Egypt and the future industrialisation possibilities of each of them separately.

PETROLEUM :

Petroleum comes at the top of the list of raw minerals produced by Egypt, and the petroleum industry has been making wide steps of progress. We wish it further progress in response partly to the concern shown by the Government in this respect and partly to the zeal with which Petroleum Companies are undertaking the exploration of oil.

The mere mention of petroleum is, however, enough to arrest the attention of all. It is the mainstay of the world's energy-producing fuels and the backbone of industry, civilisation and security. On it, depend all nations in times of peace and war.

Before petroleum came to be utilised on its present large scale throughout the world, Coal was the principal energy-generating source. Kerosine was at first the most important petroleum product. Benzine was regarded then as

an undesirable and useless item. But with the invention of internal combustion engines, benzine came to occupy a foremost place among known fuels and has since held its own. Solar and diesel are now also occupying an important place for much the same reason. Mazout, too, is beginning to wrench coal from its once high perch and is steadily gaining increasing importance.

The petroleum industry has now developed to vast proportions. Instead of depending, as it once did, on surface phenomena and superstitious practice it is making use of the sciences of geology, of geophysics and chemistry. Many other modern sciences have similarly been applied to it. Yet, despite this vast progress, the petroleum field is still fraught with many risks and adventures.

In the refining field, great developments have also taken place.

From simple primitive methods of distillation designed to fractionate petroleum into its derivatives by heat, to cracking plants calculated to convert fuel oils into benzine and even to improve the quality of benzine, to apparatus for the conversion of gases produced from petroleum into various chemicals — such indeed has been the extent of progress in the refining field.

Petroleum soon invaded the field of coal distillation and several chemicals used in industry and pharmacology have been procured.

In the field of petroleum transport, too, immeasurable developments have taken place. Crude oil and its derivatives were first carried in wooden barrels, and then in rail tanks but later along pipelines and trans-ocean oil tankers.

Nor was progress in the petroleum industry confined to quality. There has also been a definite increase in quantity in all fields.

The discovery of oilfields in Egypt has been very influential in the industrialisation of the country and in sparing it many serious economic crises during World Wars I and II.

All Egyptian crude petroleum is both refined and consumed locally, though the country imports additional petroleum products to the amount of one million tons every year in order to meet its requirements. Petroleum is thus a mineral deposit which is wholly processed in Egypt and the country gains the full benefit of its industrialisation.

At present there are two Government-owners Refineries with a capacity of approximately 1,300,000 tons, apart from the Anglo-Egyptian Oil Company Refinery which has a capacity of approximately 2,000,000 tons.

The Chamber views with gratification the Government's policy of encouraging the exploration of petroleum, improving its methods of storage

and developing the means of transporting its products for local consumption. Thanks to this policy, the capacity of Egyptian Refineries has reached the limit of satisfying all the country's requirements of petroleum products whether from local or imported crude-oil sources.

There can be no doubt therefore that every endeavour which the Government makes in this direction is bound to be fruitful and bring satisfactory results.

PHOSPHATES :

Phosphates are found in Egypt at Kussair and Safaga near the Red Sea Coast; at Sebaéyeh on the Eastern bank of the Nile; in the Oases of Dakhla and Kharga, and finally in the Sinai Peninsula. The percentage of its content of tricalcium-phosphates varies from 55% to 71% with an average of 63%. Its total annual output is about 500,000 tons, most of which is exported abroad, either as such or processed. The remainder is processed and consumed locally.

Phosphates are processed in Egypt in one out of three ways. *Firstly*, they may be ground and used as a fertiliser. The amount thus processed amount to about 80,000 tons per year and is exported abroad. *Secondly*, phosphates may be turned into superphosphates at the Kafr-Al-Zayyat and Abu Za'bal Factories. Here, nearly 80,000 tons of raw phosphates are also produced and turned into super-phosphate which are all used up locally. Nearly 130,000 tons of super-phosphates are altogether produced out of this quantity every year. *Thirdly*, phosphates may be used as components of insecticides.

The industrialisation of phosphates has saved the country large sums of foreign currency which were at one time used in the import of super-phosphate fertilisers.

The above-mentioned phosphate factories are capable of satisfying all the super-phosphate requirements of the country, but it is nevertheless to be hoped that the country's super-phosphate production will reach higher proportions for export purposes, as soon as favourable markets for this commodity have been opened up.

It is thus clear that large quantities of the total output of phosphates are processed in Egypt and are either exported abroad or consumed locally.

MANGANESE :

Manganese ore is found in different parts of Sinai and the Eastern Desert, but most of the present output of manganese ore is secured today from the district of Um-Bogma, in Sinai. Manganese ore may be classified as follows:

1. — High-grade manganese in which the percentage of manganese dioxide reached 80% to 92%.

2. — Low-grade manganese in which the percentage of the manganese element varies between 19% and 21%, and the iron element between 34% and 36%.

Production from the former type yields about 8,000 tons every year part of which is used by the local steel industry and the rest exported in exchange for hard currency.

Production from the latter type, on the other hand, stands at present at 200,000 tons per year, all of which is exported in return for hard currency.

As the Government, however, is now well on the way towards the industrialisation of iron ore, part of these manganese supplies will be used up by the steel industry which will be in operation by them. In the earlier stages of this industry the requirements of the country will not demand more than a fraction of the manganese output, something like 30,000 tons each year. The greater part of the output of manganese will continue to be exported until the steel industry has reached proportions sufficient to use up most of those supplies.

High-grade manganese ore is used particularly in making dry batteries It is also used in the preparation of certain chemicals and for colouring purposes in the manufacture of porcelain, china-ware, and glass.

TABLE SALT :

There are three great salines in Egypt — at Port-Said, Mex and Mersa Matrouh. The capacity of the first is 300, 000 tons, of the second 200,000 tons and of the third 100,000 tons, per annum. There are also other, but less important, salines at Rosetta, Balteem, Edco and other places. The agglomerate annual capacity of all Egyptian salines combined is no less than 600,000 tons. Local consumption, on the other hand, is about 150,000 tons per year.

The production of salt depends largely on the quantities which can be exported but these, in their turn, depend upon the extent of competition from foreign salines along the coast of the Red Sea and the Indian Ocean to which salt production in Egypt is exposed, despite the superior quality of Egyptian salt.

Table salt is used in industry for the production of caustic soda and chlorine by electrolysis. Caustic soda is an important component item for many industries, such as soap, artificial silks, weaving and paper industries.

Chlorine too is an important item which is used for sterilisation purposes, such as the purification of drinkable water supplies and is a component, of many disinfectants, and anticeptics, of cleaners such as bleaching powder and of insecticides such as D.D.T. It also goes into the making of certain plastics and hydrochloric acid.

Egypt imports most of her requirements of caustic soda from other countries. Such requirements could be locally provided if it were not difficult to dispose of the poisonous chlorine produced by electrolysis. Practically speaking, to every ton of caustic soda produced, there is nearly one ton of chlorine, and until sufficient usages could be made of the latter, and it is by no means difficult, we shall not be able to produce all our requirements of caustic soda in Egypt by the method of electrolysis.

The manufacture of caustic soda and chlorine out of table-salt in Egypt takes place at present at the Kafr-Al-Zayyat Cotton Company, which produces about 2000 tons of caustic soda and an equal amount of Chlorine every year. Out of the latter, 250 tons of Chlorine, 600 tons of hydrochloric acid and 1000 tons of anticeptics are made.

There is, however, a different method for the production of caustic soda out of salt other than electrolysis with its corollary of chlorine. This is called the Solvoy process, which depends on salt, limestone and ammonia. The first of these two items are consumed in the process, the third is only circulated except for the slight amount that may be lost by leakage.

Owing, however, to the relatively small quantities of caustic soda consumed by the country and the fact that the success of the Solvoy process depends on the production of reseeably big quantities, the production of caustic soda in Egypt by this method would be uneconomic unless of course larger quantities of it were demanded for new markets abroad.

TALC :

Talc is finely ground and turned into talcum powder. Nearly 600 tons of Egypt's talc output is used up locally; the remainder is exported in a processed state. Talcum powder is used in the manufacture of soap, D.D.T. powder, paper and paints etc.

Although there are large reserves of talc in Egypt, and though Egypt's production of this mineral is abundant, the Government continues to permit the importation of talcum powder from abroad without any apparent or technical justification. This has naturally led to many complaints being made by those engaged in the exploitation of this mineral.

METALS UTILISED ON A SMALL SCALE

GOLD :

The Ancient Egyptians had long ago travelled far and wide in the Eastern Desert and Sinai in search of gold. They were able to discover its ore and extract gold therefrom. This they even did on a fairly large scale. Hardly a known vein exists on which they did not leave their mark. They would dig up a mine and as soon as they had probed deep enough and could probe no longer with what primitive tools they had at their disposal they would give up work in the mine and more on to another vein, and so on. One cannot but feel overwhelmed with amazement and admiration at the ingenuity and hardiness of those Ancient Egyptians and their desperate effort to discover gold in those distant and barren areas without even the avenues to such desolate areas. Let us hope this will be a good example to us.

Gold in Egypt is found in quartz veins that cuts the igneous and metamorphic country rock which are replete with such veins, and since gold is a particularly important mineral, the Government has shown great concern for the discovery of gold veins and has despatched special expeditions for the purpose.

Gold ore is now obtained from the Sadd mines (in the Fawakheer District), near Kussair, and the gold is extracted in site and then turned into ingots varying in percentage of purity from 75 % to 78 %. It is then sent to the Stamp Duty Department to dispose of it.

ZINC AND LEAD:

All such ores are at present exported. It is to be hoped, however, that production will increase progressively as the new areas, covered by new applications and prospection licences, will yield further supplies. Some enterprises are even contemplating the construction of factories for the extraction of those two metals from their ores.

VERMECULITE PHARMACULITE AND ASBESTOS:

These two minerals are used with other substances, such as cement, for making heat and sound insulating material used for roofs, walls, screens etc.

NATROUN:

Natroun is used in the manufacture of caustic soda, and is essentially composed of a sodium carbonate. Wadi Al Natroun and the salt lakes of Beheira were once the main source for local caustic soda.

Most of the local sodium carbonate is now used up for the manufacture of soap.

WOLFRAM.:

Tungstein is extracted from Wolfram and is a strategic material used in the production of steel alloys of specially good properties and in making filaments for electric bulbs. Its salts are used as mordants for making fast dyes. So far, it has not been utilised in Egypt and all its quantities are therefore exported abroad.

BLACK SANDS:

These are sands carried by the Nile in the silt which it brings down during flood times. They are deposited at the river's mouths where they are assorted and somewhat concentrated in place by the effect of waves. These sands contain a proportion of highly useful minerals, namely ilmenite, magnetite, granite and manozite. From ilmenite is extracted titanium which is an extremely important substance. Ilmenite is a light metal of high characteristics and is widely used in many metallurgical alloys, whether ferrous or non-ferrous. White colours are also obtained from its oxides. Magnetite, on the other hand, is the most important constituant of iron ores and is therefore of great importance in the manufacture of steel. Zircons and granite from those sands are used for abrasion and polishing purposes. Monazite is the ore of thorium, a radio-active substance which is used in making certain apparatus such as X-Rays ones and photo-electric cells as well as for therapeutic purposes. Its salts are also employed in the manufacture of incandescent gas-mantles.

COLOUR ORES:

These are found in several areas but mainly in Aswan and Sinai whose iron oxides are present. This industry flourished during the War, so much so that 6732 tons of those ores were used up in 1942. This production however began to decline later. In 1948, only 2196 tons were used, and no more than 1238 tons in 1949.

ORES UNEXPLOITED AT PRESENT.

COPPER ORES:

These are found in several districts but mainly at two centres in the Eastern Desert, one is Um Seniouki, the other Abu Suwail. The former contains an ore which is in effect a combination of zinc and copper at the rate

of 28% zinc and 3.6% copper. It also contains other but less important elements. In order to ascertain the economic possibilities of its exploitation it is necessary however to conduct further testing as to its possibilities and ways of treatment for the extraction of metals therein. Copper ores at Abu Suwai are however different in constitution from those at Um Semiouki. They contain copper, nickel, cobalt, chrome and various other less important elements. Like the ores of Um Semiouki they, too, require extensive research before ascertaining their suitability for economic exploitation.

TIN:

Tin exists in Moelha and Egla, in the Eastern Desert in the veins and valleys. The tin-bearing mineral is Carsiterite which wa soriginally associated with wolfram in the quarty veins. Afterwards, they reached the valleys by effect of denudation. During the War, when the price of tin soared high, the Government thought of the exploitation of the Igla deposits and even set up a small apparatus for the extraction of tin from its ores, but the operations were given up at the end of the War owing to the high cost of locally extracted lead in comparison with the prices of lead imported from abroad.

CHROMITE:

Chromite ores are found in various parts of the Eastern Desert, mainly at Al Baramia, near the road between Edfu and Mersa Alam, in the form of lenses in the igneous rocks of the area. These ores were exploited during the War but their exploitation has since been abandoned. Research has however been resumed with a view to their exploitation once more, and indeed the deposits of this ore need extensive research before their potentials have been determined.

Chrome is used in steel alloys for the manufacture of high quality steels. It is also used for chrome-plating metals, dyeing, tanning, and photographic film-making. Its low grades are moreover employed in the manufacture of refractory materials used for furnace lining.

NICKEL:

Nickel ores are to be found in the Zabargad Isle in the Red Sea and the bearing mineral is garnierite. Nickel ores have not been exploited for a considerable time. Their exploitation lease has moreover, been cancelled.

Nickel is used in steel alloys for the manufacture of high quality steels as well as with non-ferrous metal alloys, such as copper and zinc, for several other purposes. It is also used in making coins and nickel-platines metals etc.

ILMENITE:

The ores of this mineral are found in Wadi Abu Ghalga in the Hamata district, 20 kilometres from the Red Sea coast. Reference has already been made to this mineral in the course of our statement on black sands. Owing however to its widely different formation it may be worth while to say a few words about it here. It is found in Egypt in the form of a large solid block, hill-like, which rises up something like 90 metres above the surface of the adjacent land, and penetrates under the surface to a distance not yet fathomed. The deposits of Imenite in this area have been primarily estimated as being between 16 and 30 million tons, almost in a pure state. Its average composition is as follows :

Titanium Oxide (TiO Z) 46%; Iron Oxide (Fe O) 45 %.

This composition points to the fact that this ore could be considered as an iron source apart from titanium. We therefore expect great future for the exploitation of this ore.

GRAPHITE:

Graphite was discovered at Baramia near Jebel Abu Selim, but the graphite ores that have any economic value are those found in the district of Bint Abu Garria as well as in the Wadi Sitra in the zone at Um Gheig.

Graphite is used in many industries, e.g. crucibles, paints, pencils, lubricator, electric poles and commutators.

MOLYBDENITE:

Molybdenite is found in Jebel Abu Selim and Jebel Kattar, in the Eastern Desert, on the surface of the veins cutting across the red granite rocks. It is found in association with pyrites and fluorespar.

Its main use is with iron alloys necessary for the manufacture of high quality steel.

SULPHUR:

Sulphur ore is one of the most important non-metallic ores owing to its close association with the manufacture of sulphuric acid. It may be useful, therefore, to review here the condition of the sulphuric acid industry in Egypt and its close relation to sulphur and other ores.

The country's requirements of sulphuric acid locally manufactured from imported ores are at present full satisfied. But, since Egypt is at present on

her way towards industrialisation, it is imperative that we should not slacken in finding local ores on which this industry can be based.

The sulphuric acid industry is the basis of many other vital industries. This acid is used in the manufacture of superphosphate fertilisers, oil refining, artificial silks, cellulose, war munitions etc.

At present there are three factories which produce this acid tentative to its re-employment in their own particular industries. These are the factories of superphosphates and artificial silks. Two of them produce this acid from foreign pyrites imported from Cyprus. The third prepares it from local sulphur which is a by-produced from the Anglo-Egyptian Oilfields Company's Refinery at Suez. About 43,000 tons of sulphuric acid were used in 1952 in the super-phosphate industry.

Thus, it may be seen that the country's requirement of this commodity is fully met at present. But with Egypt undertaking industrial development we must be on the alert for future possibilities and must look round from now on new for ways and means whereby we can depend upon a local sources from which the necessary raw materials can be securely obtained during war and price alike. Such attempts should indeed be encouraged in every possible way.

The recognised way of manufacturing sulphuric acid at present is to prepare it from one of these minerals: sulphur, pyrites (iron sulphide) or unhydride or gypsum. In Egypt, sulphur is found in combination with gypsum in the Gamssa and Ranga districts. Both districts fall in the Eastern Desert, along the Red Sea coast. Pyrites abound in various districts, while unhydride is found in fairly large quantities at the Ras Malab area in Sinai as well as in other districts in the Eastern Desert. Sulphur deposits combined with gypsum need to be tested with a view to ascertaining their potentials. This will require various apparatus and many researches which, luckily, are all contemplated at present. As for pyrite deposits it may be mentioned that what has appeared of them on the surface seems to be very limited and they have therefore to be tested at depths. The deposits of gypsum and unhydride on the other hand are present in large quantities and are more than sufficient to meet the requirements of the country for sulphuric acid. The acid can be produced from these deposits by their calcination in rotary ovens designed to produce sulphur dioxide and calcium oxide. The former is later converted into sulphur trioxide and then dissolved into water to produce the acid required. This is the method adopted in many countries at present but it requires, for its economic success, that production should not be less than a certain level, estimated at 80,000 tons of acid and that the residues of calcination should find a ready market. (For instance it can be used in preparing white

cement). Though Egypt's requirements in this respect do not reach this level at present, it is certain that with steady industrial progress it will be possible in the near future to adopt this method in the preparation of sulphuric acid, even if this entailed the Government's aid.

Raw sulphur is used in various industries of which insecticides, paper and rubber are but some.

FLUORSPAR:

Fluorspar is found in Wadi Igla and Jebel Al Enaigi to the east of the Bramia district also in Wadi El Gammal. Its chemical composition is calcium ploxide which is present in the ore at the rates of 83%, 93% and 83% respectively.

Fluorspar is used as a flux for smelting iron for the steel industry as well as in the production of hydrofluoric acid and the manufacture of ceramics.

MAGNESITE:

Magnesite is found in the district of Bramia as well as in Gabal Al Mayyet and other less important place. It is found in association with serpentine rocks from which it was originally derived through decompositor. It contains a proportion of magnesia about 42% and is mainly used in making refractory substances such as refractory bricks and material for the lining of high temperature furnaces.

KAOLINE:

This mineral abounds in various parts of the Egyptian deserts but chiefly in the districts of Aswan and Abu Zeneima in Sinai. It is formed as a result of the decomposition granite rocks in the area. This kind is known as "China earth" owing to its relative purity. It is chiefly used in making porcelain ware, paper, rubber and paints.

Since Egypt, however, imports porcelain ware from abroad, worth over a million pounds every year, and since the country is rich in its deposits of kaoline, feldspar, talc and silica, all of which are constituents of the porcelain industry, it is only reasonable to believe that this industry should flourish to an extent which would allow the country to dispense with imports from this commodity, thereby saving large sums of foreign currency. Moreover, this new industry would provide work for many who are naturally gifted for such industry.

LEGISLATION

In August 1948, was enacted Law No. 136 of 1948 relating to Mines and Quarries. It was the first Law to be promulgated in Egypt for the regulation of mines and quarries. In practice, however, the provisions of that Law were found wanting both as regards clarity and efficiency. It was also noted that in many respects those provisions were not commensurate with the increasing necessity for stimulating the prospection and exploitation of the mineral wealth of the country.

In view of the stagnation in the mining industry which followed the implementation of that Law, and the consequent refrainment of Mining Companies and Establishments from further expansion in this field, the Revolution Government of Egypt took the step of abrogating that Law in February 1953 by virtue of the enactment of Law No. 66 of 1953, which introduced many amendments to the provisions governing prospection and exploitation.

Though only a relatively short time has elapsed since this Law of 1953 was issued, it was nevertheless observed that a wider scope for the mining industry to help increase the national income and to contribute towards raising the standard of living in the country could be provided, if this Law was amended once more with a view to facilitate formal procedure connected with the issue of exploitation licences and leases, to save a great deal of the time usually taken up by such procedure and finally to regulate relations between Government Departments responsible for the execution of the Law, on the one hand, and individuals and companies, on the other, on a more equitable basis which would take the special circumstances of that industry into consideration.

It was also observed that the aforesaid Law had ignored some important recommendations which were put forward by those engaged in the mining industry during the study of the principles underlying it and later during the drafting of its clauses.

The Permanent Council for the Development of National Production accordingly proceeded, at the outset of its career, and in the course of its examination and consolidation of the general principles of the mining policy in Egypt, to study the legal and administrative difficulties which had obstructed the development and expansion of the mining industry in the country and to reconsider ways and means whereby individuals and companies — Egyptian and non-Egyptian alike — could be persuaded to risk both capital and effort for the exploration of the mineral resources of the country. No sooner had those difficulties been detected and the means for overcoming them elaborated than this Council made various vital recommendations. Some of those recommendations were subsequently put into effect by the amendment of Law No. 66 of 1953 on Mining and Quarries through the issue of the new Mining Law which will be treated here at length at a later stage and in the preparation and framing of which the Chamber of Mining, Quarrying and Petroleum Industries widely participated, in its capacity as the legal representative of those engaged in the Mining Industry in Egypt.

The main provisions which were introduced by this new legislation on mines and quarries may be summed up as follows :

1. — *The Application of the New Legislation to all Minerals, save Combustibles, and the Exclusion of Evaporative Salts from Its Scope of Jurisdiction.*

In compliance with the policy which aims at separating regulations of mines (to the exclusion of raw combustibles) and quarries from those governing raw combustibles, Article 1 of the new Law has defined minerals which come under the provisions of this Law. No mention was made there of raw combustibles, which, according to Article 51, are left subject to the provisions of Law No. 66 of 1953.

The exploitation of evaporative salts was also left to an independent regulation owing to the particular circumstances of the Egyptian salines in general which point to the expediency of such a step. It may however be noted that this separate legal organisation does not interfere with the designation of the salt deposits, from the technical point of view, among mines.

It may also be noted in this respect that the subjection of the exploitation of mineral waters coming out of the bowels of the earth to the provisions of the Mining Law has been made conditional upon such exploitation being calculated for the extraction of minerals from those waters. If, on the other hand, those waters were exploited in their natural state they would not come under the provisions of this Law.

II. — *Open Rights for the Exploration of Raw Minerals.*

Everyone, whether an individual or a corporate body will now be entitled, by virtue of the new Law, to explore for raw minerals through the examination of the surface or the bowels of the earth by all available means, without being required to obtain an exploration licence, as was the case under Law No. 66 of 1953, since such exploration work will lead to no more than the identification of minerals by their characteristics or by making test pits or bores to ascertain the existence, or the possible existence, of any mineral ores.

A priority right to obtain a prospecting licence is bestowed by the Law on the explorer in respect of the mineral he has explored, provided: that his name appears in the register which the Department of Mines & Quarries shall prepare in accordance with the terms of Article 6 of this Law. (This condition does not apply to the owner of the surface containing the mineral); that he notifies this Department of the existence of the mineral by a registered letter with acknowledgment of receipt so that it will record for him his exploration rights; and finally that he applies for a licence to prospect for the said mineral within three months from the date of the despatch of his notification to the Department. In default of such an application being made, he shall forfeit the priority right to which he is entitled.

It is worthy of mention that the exploration right referred to above does not confer, under the terms of this Law, any prerogative, other than priority to obtain a prospection licence, which necessarily establishes for the explorer a right to obtain an exploitation lease. The new Law has also abolished (in respect of raw minerals with the exception of raw combustibles) the right hitherto bestowed by Article 17 of Law No. 66 of 1953 on those who gave information about an area wherein a mineral existed in exploitable quantities, entitling them to a mining lease in that area. Under the Law of 1953, however, this had been made conditional upon this area being unrecorded in the special register kept of areas known to contain mineral ores in exploitable quantities and upon the informer himself holding an exploration permit, a prospection licence or a mining lease and finding an apparent mineral on his way

to the area covered by his licence or lease or discovering another hidden mineral in the course of his work in the said area.

Ii. — *Technical and Financial Efficiency of Applicants for Prospection Licences.*

The new Law has retained the previous stipulation that for the granting of a prospection licence the applicant should satisfy the necessary technical ability required for the purpose. It is understood, however, that this technical ability, could be fulfilled either by the applicant personally or by any such technicians or engineers as may be in his employ.

As for financial requirements, though the new Law did not make clear-cut stipulations in respect of them — contrary to what had been contemplated by Article 10 of the Law of 1953 — it however, left the matter to the discretion of the Department of Mines & Quarries which, with, a view to ensuring the serious nature of prospection operations, will determine what the applicant should expend on such operations. This right with which the Department of Mines & Quarr. has now been invested will be used neither arbitrarily nor extravagantly but with due regard to the merits of each individual application, taking into account such considerations as the nature of the raw mineral, the prospection area, etc.

IV. — *The Instrument for the Issue and Renewal of Prospection Licences and Exploitation Leases.*

With the object of facilitating the issue of prospection licences and exploitation leases, the new Law has discarded the stipulation that such licences should be issued by a law, so long as they fulfilled the general requirements envisaged by the new legislation. An Arrêté by the Minister of (Commerce and) Industry has now become the recognised instrument for the issue of those licences and leases. The same thing applies also to the renewal of exploitation leases. As for the renewal of prospection licences, it was left by the new Law to the competence of the Department of Mines & Quarr., provided in all cases the licencee has fulfilled all his obligations.

With regard to Clauses bearing on quarries, Article 26 of the new Law has authorised the Minister of (Commerce and) Industry to deputise others for the issuing and renewal of exploitation leases.

Article 35 of the new Law lays down, in the mean-time, that the Ministry of (Commerce and) Industry should draw up model types for the texts of propection licences, protection permits as well as leases for the exploitation of raw minerals and quarry materials, provided such types were endorsed by the Council of Ministers. The express purpose of the provision is to save such of the time otherwise taken up by the State Council for legal revision whenever each of these licences or leases was to be issued.

V. — *Duration and Form of Prospection Licences and Exploitation Leases.*

A) Prospection Licences.

Whereas Article 10 of Law No. 66 of 1953 had fixed the duration of a prospection licence at a renewable period of one year, the New Law has deemed it fit to leave the duration of the licence at the will of the applicant himself, on condition that it does not exceed four years in all, including the initial and renewal periods. In other

words the applicant can straight-away obtain a licence for a maximum period of four unrenewable years. This will abreviate the renewal procedure provided for by the Law, for which the lessee may not afford the time, in view of the already short interval appropriated for prospection work.

The new Law has further abolished the stipulations stated in Article 11 of the old Law which laid down that the number of prospecting licences granted to any one person for any one mineral, in any one zone, should not exceed four. The number of such licences is now no longer subject to this restriction. In the meantime, the maximum area covered by each licence has been increased up to sixteen square kilometres, half of which is to be forfeited by the applicant after the lapse of two years from the date the licence was issued, unless he applies for an exploitation lease in respect of this half or part thereof.

B) Exploitation Licences

1. — The new Law has reiterated the provisions of Law No. 66 of 1953 with regard to the issue of exploitation leases for the period indicated by the applicant, provided it did not exceed thirty years at the utmost. With regard to the renewal of leases, it has *authorised such renewal by an Arrêté of the Minister — subject to the same conditions — for another period not exceeding thirty years*, on the termination of which the same lease may be renewed, this time by a law, and subject to conditions agreed upon by the Ministry and the lessee. (These conditions may remain the same as in the original lease or may differ according to circumstances.)

2. — For quarries, on the other hand, the new Law has fixed the maximum limit of thirty years, renewable for two periods not exceeding fifteen years each. Further renewals should be made by a law.

C) The new Law has also laid down that the area covered by either a prospection licence or an exploitation lease, so far as raw materials are concerned, should be either square or rectangular in shape.

VI. — *The Scope of Prospection Licences and Exploitation Leases.*

A) The general rule is that prospection for minerals, and the exploitation of such minerals, should take place in accordance with a licence issued in conformity with the rules laid down by the Law (Article 6). Allowance has, however, been made to certain cases where a raw mineral, for which a licence has been granted, is found mingled with another raw mineral or minerals which could not have been foreseen by the licensee or lessee and which was not covered by the licence or lease originally issued to him, while at the same time it is impossible to extract the original raw mineral unmingled with the other raw mineral or minerals. By the provisions of Articles 10 and 19, the new Law has authorised the licencee or the lessee to secure, the Department's approval to the addition of the names of the other raw minerals mingled with the ore for which his licence or lease was issued, so that he may safeguard himself against the penalties imposed by the Law for cases where the prospection or extraction of minerals is conducted without permits.

B) With the object of encouraging prospection work and precluding the possibility of the mineral wealth of the country being left idle and unexplored, the new

Law has authorised the Minister of (Commerce and) Industry to issue prospection licences to other than the licencee already granted a permit in the same prospection authorising prospection for a mineral, or minerals, other than that for which the first permit has already area, been issued. The Law has also validated the granting of a permit, in an area already covered by a licence, for the pursuance of other works essential for the exploitation of mines and quarries such as the construction of highways, railways, pipe-linesand similar other schemes envisaged by Article 36 of this Law.

Such permits are, however, granted on the express condition that they did not prejudice prospection work already underway in the area for the benefit of the original licencee (Article 12).

VII. — *Rules for Bids and Public Auctions.*

A) Law No. 66 of 1953 had restricted the granting of prospection licences and exploitation leases to applicants, in the order of precedence of date and hour of submission of their applications, to areas where the discovery of raw minerals was made by the applicant, or where it was proved by him that the ore existed in exploitable quantities.

According to the Law of 1953 too, areas in respect of which the right of the prospection licencee was forfeited after having carried out therein works which increased their value; areas where the lessee's right to exploitation had been forfeited; and likewise areas included in the special register and known to the Department to contain mineral ores in exploitable quantities, should all be put to public auction for prospection or exploitation, as the case may be, even if no bid was made in the auction held for the purpose.

The new Law, on the other hand, has taken a practical step forward in this direction by decreeing that prospection areas referred to above should be put to public auction within thirty days from the date of their advertisement. Exploitation areas, however, should be made the subject of a public auction within six months from the date the application was submitted.

In the event of only one bid being submitted, the applicant thereof shall be entitled to obtain a prospection licence or an exploitation lease for the area or areas in question.

If on the other hand no bidders were forthcoming, the licence, or the lease, should be granted in accordance with the rules of priority of application referred to in Article 8.

The object of this innovation is to cope with cases where the absence of bidders is due to an exaggerated bidding minimum or to lack of interest, on the part of more than one applicant, in the area, or areas, put up for auction.

B) With regard to areas recorded in the special register and known to the Department to contain raw minerals in exploitable quantities, the new legislation has made bids for securing mining leases in such areas dependent, not only upon the amount of the annual rental, but also on productive efficiency with regard to the value of the output, the improvement in the kind of the raw material and the s etting up of constructions necessary for the purpose. This step was taken by the framers of the new Law after they had deemd it proper to abolish royalties and premiums on raw minerals to which this law will be applicable.

The new Law has, however, authorised departure from those rules if the competent Committee, with the approval of the Minister of (Commerce and) Industry, and for good reasons to warrant such an action, should decide to make the rental above, whether in full or reduced, a bidding minimum in this auction.

VIII. — *Stabilization of Substantial Conditions Provided of Mining Leases and Prospection Licences.*

The new Law has, moreover, discriminated between procedural conditions entailed by mining leases and prospection licences on the one hand, and rules related to the substance of such leases and licences on the other. The former are usually connected with form and procedure. Here, the new Law lays down that licences and leases shall be subject at their renewal, in so far as such conditions are concerned, to the rules and regulations in force at the time of renewal.

Conditions related to substance on the other hand, which are usually in the nature of a contract and treat in particular the financial obligations as well as the rights of the licencee, or the lessee, will, according to the provisions of this Law, remain uncharged at the renewal of licences or leases. They will thus remain, with regard to both their nature and effect, subject to the law under which they were born.

The object which the framers of the new Law had in mind in introducing this provision is to ensure the stability of the legal and economical principles on which prospection and exploitation work is undertaken from the outset and into renewal periods.

IX. — *Financial Obligations :*

A) Royalties:

1. — *The new Law has abolished royalties levied on the exploitation of raw minerals covered by its provisions.*

2. — But it retained those royalties in respect of the exploitation of quarry materials, while effecting *at the same time a substantial reduction on the two categories of basalt, in response to repeated complaints about their hitherto high rate.*

3. — It may sometimes happen that an individual or an establishment undertakes a temporary operation or project, for instance, the construction or repair of a road; and it may so happen that a quarry area is found in the neighbourhood for which no exploitation lease has been issued and from which the Contractor would have otherwise obtained his requirement of quarry material for the operation or project in hand; or it may happen that quarries, for which an exploitation lease has been issued, are found but are so remote as to render it difficult to obtain necessary material therefrom at a reasonable price. To cater for such an exigency and to avoid the necessity of the Contractor having to apply for an exploitation lease for the entire quarry or quarries for a period of not less than one year — while the period necessary for the execution of the project may be only one month of a few months at the very utmost — the new Law has authorised the Department of Mines & Quarr. to permit in such cases the extraction of limited quantities of quarry material from adjacent quarries against the payment, in advance, of due royalty, pending

final settement of the expenditure incurred by the establishment charged with the operation and the preparation of its final balance sheet. This has, however, been made conditional upon the permit being given for limited quantities, for a limited period as well as for a definite object and upon the absence of licenced quarries within a radius of ten kilometres from the site of operations.

4. — Article 29 has also authorised the holder of a mining lease for the exploitation of a raw mineral to extract, free of charge, from quarries in the area covered by his lease, such material as may be necessary for his mining operations. A holder of a licence for prospecting raw minerals will, by implication, benefit by this provision.

B) Remals

1. — *With regard to raw minerals*, the new Law has retained the previous categories of annual rentals related to prospection licences. For the rental of exploitation areas, on the other hand, a unified category has been prescribed which amounts to L.E. 5.- per annum for each hectare or part thereof, with a minimum total sum of L.E. 40.- for the whole area. Under Law No. 66 of 1953, rentals had varied according as to whether the mineral was found in veins, lenses or sedimentary layers in the valleys.

2. — *With regard to quarry materials*, on the other hand, the new Law has retained the rules relating the assessment of annual rentals by means of the Committee set up for this purpose and by virtue of an Arrêté issued by the Minister of (Commerce and) Industry, and has maintained the functions with which this Committee to reconsider the under Law No. 66 of 1953. Article 28 of the new Law has, however, authorised the said Committee to reconsider the rental of a lease during the period for which it is valid, in respect of leases extending for ten years or more if the Committee sees good reasons to warrant this or in response to an application made by the lessee to this effect. In all cases, such a procedure can be adopted only after the lapse of five years at least from the assessment in force. If follows ipso facto that the Committee can exercise this right on the termination of a lease or at its renewal.

3. — The new Law has likewise retained the previous categories of rentals for areas leased out for the purpose of setting up constructions or buildings, the laying of Ducovil tracks or pipelines and the installation of wharves, airfields and such other services as may be necessary for prospection and exploitation work.

C) Article 32 has moreover authorised the Department of Mines & Quarr. to grant the owner of land containing building materials permission to extract such materials for his own use, but not for exploitation purposes. He shall also be exempted from the payment of either rent or royalty.

D) *Examination Fees:* The new Law has stipulated in clear terms the collection of one examination fee for each individual application, even if it bore on more than one licence or lease provided those embodied, in any one application were homogeneous. Since, however, the payment of such fee is merely a condition for the consideration of the application and the adoption of a final decision on it, and is not a condition for receiving it, the Law has provided that no right or title connected with any of the delays mentioned in it should lapse for failure to defray the required fee

at the appointed date. Such fee will however, be doubled in this event and the application would be considered as non est if the Department informed the applicant by a registered letter with acknowledgment of receipt of the necessity of paying the required fee and the applicant failed to make the payment within thirty days from the date of the Department's notification.

Those questions had been the cause of much dispute under the old Law and the framers of the new Law have now sought to settle such disputes and remove their cause once and for all this new legislation.

E) *The Owner of the surface :* The new Law has also provided for the exemption of the owner of the surface from the payment of rent due for the exploitation area. He is similarly exempted from the payment of rent for the prospection area in his property if he himself undertakes the work of prospection or exploitation, (Article 15). The Law has also conferred upon him, in the event of the exploitation licence being granted to a third party, the right to receive half the value of the rent from the Department of Mines & Quarr. by way, of indemnity for being deprived of his right to benefit by his property. The provisions of this Article will also apply to the owner of the surface containing quarry materials below (Article 32).

X. — *Control of the Department of Mines & Quarries over Prospection and Exploitation work :*

The new Law has relieved this Department of much of its burdensome task by abolishing royalties imposed on raw minerals, (except raw combustibles). The collection of those royalties, their claim and all that it led to in the past had occupied much of the time and effort of its staff. The new Law has, on the other hand, assigned to this Department an important positive role for coordinating prospection and exploitation work, on the ground that this was its fundamental duty. Apart from the implementation of the general rules bearing on licences and leases it is now entrusted with the following duties :

a) To prepare a special register for the entry of the names of all explorers and to record their discovery right (Article 7).

b) To endorse the prospection programmes in advance and determine expenditure necessitated by such programmes in order to ensure their serious character; to guide such as may be in charge of those programmes along proper technical and economic channels; and to decide — according to circumstances — whether or not a licence should be renewed. (Article 10).

c) To exercise control over exploitation work so as to ensure, in the public interest, that such work is not suspended, thus obviating the possibility of the mineral wealth of the country remaining neglected or unexploited, and otherwise to grant the lessee a chance to overcome the causes which have led to suspension of work. Should work be suspended for three successive years, however, without the lessee being able to overcome his difficulties, or should the lessee show definite signs that he intended to discontinue the work. The Department would in this instance, come forward with a proposal for the cancellation of his lease (Article 18).

d) With the object of enabling the Department to fulfill its duties, Article 42 of the new Law has made it incumbent upon the holders of prospection licences

or mining leases to submit to the said Department monthly forms, quoted from their own registers, showing all the data connected with their employees and workmen and giving full information of the raw material extracted from their mines — the quantities transported or sold, their composition and sale price. Explosives and any other data which may be stipulated by an Arrêté of the Minister of (Commerce and) Industry should also be included in these forms. Likewise copies of invoices relating to exploitation should be sent to both the Department of Mines & Quarr. and the Company's Department. To this may be added the power of judicial officers, and other authorities, with which the officials of those two Departments have now been invested in order to assure the recording of contraventions.

e) The lessee or holder of prospection licences is also required, by virtue of Article 48, to forward to the competent Department a comprehensive annual report, embodying all the information he has acquired and the work he has achieved, coupled with copies of all reports and maps he has prepared. All such data and maps shall accrue to the said Department in the event of the licence or lease being forfeited, or upon the termination of its term of validity.

f) Likewise, Article 41 requires the holders of mining and quarry leases to keep books envisaged by Law No. 388 of 1953 on Commercial Books, Law No. 66 of 1953 had confined this obligation to exploiters of mines alone (Article 62 of the said Law).

XI. — *Minerals (other than Raw Combustibles) are not subject to Rules relating to Requisition of Mines, of Mine output, or Relevant Industry Plants:*

With the enactment of the new Law and the application of its provisions, and none other, to minerals (with the exception of raw combustibles), the provisions of the Articles 43 and 44 of Law No. 66 of 1953 will be ipso facto repealed with regard to such minerals.

Those two Articles had been initially framed for the purpose of regulating the Government's right to requisition the whole, or part, of the output of the mine, whether crude or refined; to call upon the lessee to increase his production to its maximum capacity; and even to requisition the mine itself together with all relevant processing plant in cases of emergency arising from the outbreak of war, or the expectation of war or from internal or other circumstances.

The abolition of the requisition provisions referred to in respect of minerals other than raw combustibles, will not however prejudice the rights with which the Government is otherwise endowed by virtue of the laws of Provisions and Supplies. This view is further elucidated by reference to the discussion and preliminary work which preceded the drafting of this Law.

Article 6 of the new Law has even authorised the prohibition of prospection or expolitation of any particular mineral occupying a place of a special importance in the National Economy, provided such prohibition was made by a decision of the Council of Ministers. In this event all such prospection licences and mining leases already granted, shall be cancelled and should it be necessary, the party concerned shall have a right to claim for an equitable compensation. The Ministry of (Commerce &) Industry shall in this case undertake the work of prospection or exploitation, either by itself or by means of a concession, subject to the conditions and stipulations laid down by article 50 of this Law.

It is a forgone conclusion, however, that the Government, in view of the restrictions imposed upon the exercise of its powers in this respect, will not have recourse to this measure unless it was absolutely necessary in the interest of National Economy or for considerations of security.

XII. — *Transitory and Exceptional Provisions :*

1. — *Applicability of the Provisions of the New Law to Exploitation Leases and Prospection Licences Existing at the Time of Its Implementation:*

Article 49 of the new Law authorises the application of the provisions of this Law to exploitation leases and prospection licences (whether in respect of raw minerals or quarry material) existing at the time of its implementation, if the interested party submits an application to this effect within one year at the utmost from the date this Law comes into force, subject to the approval of the Minister of (Commerce and) Industry of such an application.

2. — Since, in the public interest, it may be necessary at times to make some departures from the general rules laid down by this Law, article 50, of the said Law, has authorised the issue of a licence, by virtue of a Law, to a Company, an establishment or a Society to prospect for minerals or to exploit mines and quarries, subject to the special conditions which the Law granting the licence may lay down.

Farouk el Bakary

LES MODÈLES ÉCONOMIQUES DE WALRAS ET DE LÉONTIEF

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Les modèles économiques constituent un procédé d'analyse très en faveur aujourd'hui, aussi bien pour l'étude théorique des phénomènes économiques que pour les recherches statistiques s'y rapportant. Ils sont surtout utiles quand il s'agit d'étudier ces phénomènes dans leur ensemble, comme les problèmes du rapport entre l'investissement, le revenu national et l'épargne, du niveau d'emploi adéquat, de l'influence du niveau des salaires sur le prix des biens de consommation courante, de la planification intégrale, etc.

L'un des plus célèbres modèles du genre remonte à la fin du siècle dernier, c'est celui que construisit Walras dans son œuvre principale : "Éléments d'économie politique pure", publiée pour la première fois en 1874. Ce modèle fut conçu pour servir à un usage purement théorique : exposer d'une manière plus précise que celle des Classiques et faire ressortir les rapports étroits d'interdépendance qui unissent entre eux les phénomènes économiques.

A l'aide d'un système d'équations simultanées il démontre comment se déterminent les uns par les autres le prix et la quantité produite des différentes marchandises ainsi que la rémunération et l'offre des services producteurs.

L'importance de ce modèle théorique pour la compréhension du mécanisme de l'équilibre général de l'économie fut tout de suite unanimement reconnue. L'œuvre de Walras constituait, sans contredit, une contribution substantielle au développement de la science économique. Malheureusement très peu d'économistes entreprirent de poursuivre la tâche si bien commencée par le fondateur de l'Ecole de Lausanne. La plupart d'entre eux préférèrent, à l'exemple de Marshall, utiliser le procédé d'analyse connu sous le nom de méthode d'équilibre partiel et nul ne pensa jamais que le modèle théorique de Walras, remanié et simplifié, pouvait un jour servir à des fins d'utilité pratique.

Ce n'est que 70 ans après qu'un économiste américain songea à construire un modèle dans le genre de celui de Walras mais basé sur des données statistiques pour en faire un instrument de politique économique. C'est en 1941, en effet, que fut révélé au public, le modèle établi par Wassily Léontief et publié dans son ouvrage : "The Structure of American Economy 1919-1929. An Empirical Application of Equilibrium Analysis."

Nous allons commencer par analyser le modèle théorique de Walras et les fondements de sa théorie puis nous essaierons de montrer comment ce modèle devait être modifié pour pouvoir être pratiquement applicable. Nous verrons enfin comment le modèle statistique de Léontief qui est la réplique moderne de celui de Walras, peut rendre des services inappréciables dans le domaine de la planification et du dirigisme économiques.

I.— L'équilibre général de Walras.

L'un des principaux apports de Walras est sans conteste sa théorie subjective de la valeur (1). C'est par elle qu'il explique le comportement des individus dans leurs échanges de biens et de services et c'est sur elle qu'il fonde sa première série d'équations dans son système d'équilibre général.

On sait que la théorie subjective de la valeur part de ce fait d'observation que les unités successives d'un même bien ont pour le porteur de ce bien une utilité d'intensité décroissante, depuis la première qui répond au besoin le plus urgent jusqu'à la dernière après laquelle se produit la satiété. En appelant *rareté* l'intensité du dernier besoin satisfait par une *quantité consommée de marchandise*, on peut dire que la rareté d'un bien (A) ou, en langage moderne, son utilité marginale est fonction de la quantité consommée de ce bien:

$$r = \varphi_a (q)$$

(r représentant la rareté et q la quantité consommée).

La valeur des différents biens dépendra ainsi de leur "rareté" entendue dans le sens précisé plus haut puisque c'est en comparant la rareté de chaque bien à son prix courant que les échangistes détermineront leur demande et leur offre. Walras énonce ainsi son théorème de l'échange, après l'avoir prouvé mathématiquement :

"Deux marchandises étant données sur un marché, la satisfaction maxima des besoins, ou le maximum d'utilité effective a lieu pour chaque porteur lorsque le rapport des intensités des derniers besoins satisfaits ou le rapport des raretés est égal au prix" (2).

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(1) Nous savons que Walras peut-être considéré comme le fondateur de la théorie marginale au même titre que Jevons et Menger.

(2) Voir : "*Eléments d'économie politique pure*" Edition définitive, Paris 1926, 8e. Leçon, pp. 72 et s.

Remarquons tout d'abord la terminologie particulière de Walras. Pour lui, l'*utilité effective* correspond à ce que nous appelons aujourd'hui l'utilité totale comme le terme *rareté* correspond à l'utilité marginale. On peut donc transcrire ainsi l'énoncé de son théorème :

Dans l'échange de deux marchandises l'une contre l'autre, chacun des échangistes obtient une satisfaction maximum de ses besoins ou un maximum d'utilité totale pour les biens qui lui reviennent au terme de l'échange, lorsque le rapport de l'utilité marginale de ces biens est égal au rapport de leurs prix respectifs.

Supposons que l'un des porteurs de la marchandise (B) possède la quantité q_b de cette marchandise et veuille en échanger une partie o_b contre une certaine quantité d_a de la marchandise (A). Etant donnés p_a, p_b les prix respectifs de (A) et (B), notre échangiste déterminera les quantités demandées et offertes de telle sorte que, au terme de l'échange, nous ayons les deux équations suivantes :

$$d_a \times p_a = o_b \times p_b \qquad (1)$$

$$\frac{\varphi_a(d_a)}{\varphi_b(q_b - o_b)} = \frac{p_a}{p_b} \qquad (2)$$

L'équation (1) exprime l'équivalence des deux termes de l'échange, tandis que l'équation (2) est une application du théorème de la satisfaction maxima des besoins énoncé ci-dessus. $\varphi_a(d_a)$ représente la rareté ou utilité marginale de la quantité obtenue de (A), $\varphi_b(q_b - o_b)$ représente la rareté ou utilité marginale de la quantité de (B) que conserve notre échangiste. Le rapport de ces raretés doit être égal au rapport des prix.

Nous allons voir maintenant ce que deviennent ces équations dans le cas plus général de l'échange portant sur plusieurs marchandises et services. Soient (T), (T'), (T")... les services rendus par les terres d'espèces différentes, (P), (P'), (P")... les différentes sortes de travaux de personnes, (K), (K'), (K")... les diverses espèces de services de capitaux. Supposons que les espèces de ces services soient au nombre de n.

Au moyen des services ci-dessus définis, on peut fabriquer des produits d'espèces : (A), (B), (C), (D), ... au nombre de m. Le produit (A) représente le numéraire c'est-à-dire la marchandise en laquelle on énonce les prix de toutes les autres.

"Les produits, dit Walras, ont pour chaque individu une utilité que nous avons exprimée par une équation d'utilité ou de besoin: $r = \varphi(q)$. Mais les services eux-mêmes ont pour chaque individu une utilité directe. Et, non

seulement, on peut à volonté soit affermer soit garder pour soi tout ou partie du service de ses terres, de ses facultés personnelles, de ses capitaux, mais on peut, en outre, acquérir si l'on veut, de la rente, du travail ou du profit (1) non à titre d'entrepreneur mais à titre de consommateur pour en user directement, c'est-à-dire non comme services producteurs mais comme services consommables. Les services sont donc eux aussi des marchandises dont l'utilité pour chaque individu peut s'exprimer par une équation d'utilité ou de besoin: $r = \varphi\ (q)$." (2).

Supposons maintenant un individu disposant de certaines quantités de services producteurs : q_t de (T), q_p de (P), q_k de (K),... et soient p_t, p_p, p_k... p_b, p_c, p_d... les prix courants des services et des produits exprimés en unité de (A). Etant donnés ces prix notre individu offrira en tout ou en partie les services producteurs qu'il possède : o_t, o_p, o_k,... (3) et demandera en échange certaines quantités des différentes marchandises : d_a, d_b, d_c, d_d...,

L'équation d'équivalence des deux termes de l'échange s'établira ainsi:

$$o_t\, p_t + o_p\, p_p + o_k\, p_k + \ldots = d_a + d_b\, p_b + d_c\, p_c + d_d\, p_d + \ldots \quad (3)$$

Le côté gauche de cette équation (3) représentant le revenu de cet individu, le côté droit, l'usage qu'il en fait.

Quant au système d'équations exprimant la satisfaction maxima des besoins satisfaits, on peut l'exposer ainsi :

$$\left.\begin{array}{ll} \varphi_t\,(q_t - o_t) = p_t\, \varphi_a\,(d_a) \\ \varphi_p\,(q_p - o_p) = p_p\, \varphi_a\,(d_a) \\ \varphi_k\,(q_k - o_k) = p_k\, \varphi_a\,(d_a) \\ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \\ \varphi_b\,(d_b) = p_b\, \varphi_a\,(d_a) \\ \varphi_c\,(d_c) = p_c\, \varphi_a\,(d_a) \\ \varphi_d\,(d_d) = p_d\, \varphi_a\,(d_a) \end{array}\right\} \quad (4)$$

Ces équations au nombre de $(n + m - 1)$ ne sont, ici encore, qu'une application du théorème de l'égalité qui existe au terme de l'échange entre le rapport des raretés ou utilités marginales et le rapport des prix. On a pour le service (T) l'égalité :

$$\frac{\varphi_t\,(q_t - o_t)}{p_t} = \frac{\varphi_a\,(d_a)}{1}$$ (le prix de la marchandise (A) utilisée comme numéraire étant égal à l'unité) ou

(1) Dans la terminologie de Walras, la rente est le service de la terre, le profit le service du capital.

(2) Voir: *Eléments*, pp. 208 et s.

(3) Il se peut aussi qu'il demande certains services et dans ce cas o_t, o_p, ou o_k sera représenté par le signe négatif.

$\varphi_1 (q_1 - o_1) = p_1 \varphi_2 (d_a)$.

Et il en est de même pour chaque service et chaque marchandise.

Les équations (4) forment donc avec l'équation (3) un système de n + m équations simultanées dont les inconnues sont les quantités offertes de services o_1, o_2, o_3,... et les quantités demandées de produits: d_a, d_b, d_d,...

En isolant à tour de rôle, o_1, o_2, o_3,... d_a, d_b, d_c, d_d,... dans l'équation (3) et en remplaçant dans les équations ainsi obtenues, les autres termes par leurs valeurs tirées des équations (4) on obtiendra les équations d'offre et de demande.

Ainsi par exemple, l'équation (3) nous donne :

$$o_1 = \frac{d_a - d_b p_b + d_c p_c - d_d p_d + \ldots - o_2 p_2 - o_3 p_3 - \ldots}{p_1}$$

Et, en remplaçant d_b, d_c, d_d,... o_2, o_3,... par leurs valeurs respectives tirées des équations (4) on a :

$$o_1 = f_1 (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots).$$

On aurait de même :

$$o_2 = f_2 (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots)$$
$$o_3 = f_3 (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots)$$
$$d_b = f_b (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots)$$
$$d_c = f_c (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots)$$
$$d_d = f_d (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots)$$

La demande de (A) serait tirée directement de l'équation (3) :

$$d_a = o_1 p_1 + o_2 p_2 + \ldots - (d_b p_b + d_c p_c + d_d p_d + \ldots)$$

On pourrait obtenir de même les équations d'offre et de demande des autres individus. En désignant par O_1, O_2, O_3,... D_a, D_b, D_d,... les offres et demandes totales, par F_1, F_2, F_3,... F_a, F_b, F_c, F_d,... les sommes des fonctions f_1, f_2, f_3,... f_a, f_b, f_c, f_d,... on aurait un système de n + m équations:

$$\left.\begin{aligned} O_1 &= F_1 (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots) \\ O_2 &= F_2 (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots) \\ O_3 &= F_3 (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots) \\ &\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \\ D_b &= F_b (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots) \\ D_c &= F_c (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots) \\ D_d &= F_d (p_1, p_2, p_3, \ldots p_b, p_c, p_d, \ldots) \\ &\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \end{aligned}\right\} \quad (5)$$

$$D_a = O_1 p_1 + O_2 p_2 + O_3 p_3 + \ldots - (D_b p_b + D_c p_c + D_d p_d + \ldots)$$

Les équations (5) font bien ressortir comment l'offre et la demande de chaque service ou produit dépend non seulement du prix du service ou produit en question mais aussi du prix de tous les autres services et produits.

Dans cette série d'équations les prix sont considérés comme des données. Il en est ainsi pour chaque individu en régime de libre concurrence. Mais pour l'ensemble de l'économie, cela est différent, les prix doivent être déterminés et sont, par conséquent, considérés comme des inconnues. Pour leur détermination Walras utilise deux autres séries d'équations et introduit ce qu'il appelle les *coefficients de fabrication*, c'est-à-dire les quantités de chacun des services producteurs qui entrent dans la confection d'une unité des différents produits. Il représente par a_t, a_p, a_k... les quantités respectives des services producteurs (T), (P), (K),... qui entrent dans la confection d'une unité du produit (A), par b_t, b_p, b_k,... les quantités respectives de ces services producteurs qui entrent dans la confection d'une unité du produit (B), etc. [1]

En établissant l'égalité entre les quantités employées des différents services producteurs et les quantités offertes de ces services, on obtient les *n* équations suivantes :

$$\left.\begin{array}{l} a_tD_a + b_tD_b + c_tD_c + d_tD_d + \dots = O_t \\ a_pD_a + b_pD_b + c_pD_c + d_pD_d + \dots = O_p \\ a_kD_a + b_kD_b + c_kD_c + d_kD_d + \dots = O_k \\ \dots\dots\dots\dots\dots\dots\dots\dots \end{array}\right\} \quad (6)$$

Puis, en considérant que, en cas d'équilibre, les prix de vente des produits sont égaux à leurs prix de revient en services producteurs on peut établir les équations suivantes, au nombre de *m* :

$$\left.\begin{array}{l} a_tp_t + a_pp_p + a_kp_k + \dots = 1 \\ b_tp_t + b_pp_p + b_kp_k + \dots = p_b \\ c_tp_t + c_pp_p + c_kp_k + \dots = p_c \\ d_tp_t + d_pp_p + d_kp_k + \dots = p_d \\ \dots\dots\dots\dots\dots\dots\dots\dots \end{array}\right\} \quad (7)$$

Ce qui fait en tout pour l'ensemble de l'économie 2m+2n équations. Mais celles-ci se réduisent en fait à 2m + 2n — 1 équations. En effet si on multiplie les deux membres des *n* équations du système (6) respectivement par p_t, p_p, p_k,... et les deux membres des *m* équations du système (7) respectivement par D_a, D_b, D_c, D_d, ... et qu'on additionne séparément les équations

(1) Walras suppose que ces coefficients sont fixes et connus. Nous verrons plus loin les reproches qu'on peut lui faire sur ce point.

de chaque système, on obtient deux équations dont les premiers membres sont identiques, ce qui donne entre les seconds l'équation :

$O_1p_1 + Op_2p_2 + O_3p_3 + \ldots = D_a + D_bp_b + D_cp_c + D_dp_d + \ldots$

qui n'est autre que la dernière équation du système (5).

Il restera donc $2m + 2n - 1$ équations pour déterminer $2m + 2n - 1$ inconnues qui sont :

1) les n quantités totales de services offerts
2) les n prix de ces services
3) les m quantités totales de produits demandés
4) les $m - 1$ prix des produits exprimés en unités de (A).

Le nombre d'équations étant égal au nombre d'inconnues, le problème de l'économie générale peut être résolu.

Le modèle de Walras que nous venons d'analyser est un modèle général, compréhensif qui représente les activités économiques dans leur ensemble; et ce modèle, bien que théorique (1) et simplifié, nous donne une image assez proche de la réalité. Grâce à lui, nous pouvons concevoir clairement jusqu'à quel point les phénomènes économiques sont étroitements liés et interdépendants.

Ainsi il apparaît que le prix de chaque produit et de chaque service ne dépend pas seulement de quelques facteurs donnés à l'exclusion des autres, mais que tous les prix se déterminent à la fois par les conditions qui constituent l'état d'équilibre. Les changements qui peuvent affecter le prix ou la quantité produite d'une certaine marchandise affectent en même temps le prix et la demande des autres produits. Les prix ne sont donc pas déterminés d'une manière arbitraire mais sont fonction des conditions du marché. C'est pourquoi, il est si difficile de vouloir tarifer par voie administrative le prix de certains produits.

De même, il ressort de l'analyse de Walras que la satisfaction maxima des besoins de chaque individu, dans les limites de son revenu n'est pas incompatible avec la satisfaction maxima des besoins des autres individus.

Nous faisons remarquer, en outre, que l'une des équations générales de Walras : $O_1p_1 + O_2p_2 + O_3p_3 + \ldots = D_a + D_bp_b + D_cp_c + D_dp_d + \ldots$ qui exprime l'égalité fondamentale entre l'ensemble des revenus des individus pour une période donnée et la valeur totale des biens qu'ils produisent pendant

(1) Rappelons-nous, dit Walras, qu'il s'agit toujours, ici, non pas de résoudre en réalité le problème en question mais uniquement de concevoir scientifiquement la nature du problème qui se pose et se résout empiriquement. (*Éléments*, p. 112).

la même durée de temps, est d'une importance capitale pour les études macro-économiques. Cette idée, qui nous est familière aujourd'hui, n'avait pas été suffisamment mise en lumière par les économistes classiques, et c'est à Walras que revient le mérite de nous avoir montré le profit que l'on pouvait en tirer.

On lui a cependant reproché d'avoir utilisé dans son modèle, des coefficients fixes de fabrication, et des fonctions de production de forme linéaire. S'il représente par a_t, a_p, a_k,... les quantités respectives des services (T), (P), (K),... nécessaires pour confectionner une unité du produit (A) cela signifie que pour confectionner deux unités de ce produit il faut utiliser deux fois plus de services : $2\,a_t + 2\,a_p + 2\,a_k + \ldots$ et pour en confectionner n unités il faut utiliser n fois plus de services : $n\,a_t + n\,a_p + n\,a_k + \ldots$ etc.

En un mot la quantité de produits est directement proportionnelle à la quantité de services producteurs employés. En réalité cela n'est pas toujours exact et les fonctions de production ne sont pas nécessairement de forme linéaire. Mais nous verrons, maintenant, en analysant le modèle de Léontief, que l'économiste américain a eu recours à cette même simplification qui lui paraît très admissible.

II. — Le système d'input-output de Léontief.

Le système de Léontief peut être considéré comme une simplification et une adaptation du modèle général de Walras en vue de son application à la solution pratique des problèmes économiques américains.

C'est d'abord une simplification. Considérant que le phénomène de l'utilité marginale est de nature essentiellement psychologique et personnelle et qu'il est extrêmement difficile sinon impossible de songer à établir pratiquement des fonctions d'utilité, Léontief écarte de son système les équations exprimant la satisfaction maxima des besoins. Il renonce du même coup à la possibilité de rechercher par les équations de son modèle à déterminer les quantités demandées de marchandises et de services. Il les considérera comme des données pouvant être tirées de l'étude statistique du marché. On remarquera que l'économiste suédois K. Cassel avait déjà renoncé, dans un modèle théorique construit dans le genre de celui de Walras, à faire usage des fonctions d'utilité.

Pour la détermination mathématique des prix, Léontief avait dans son premier modèle posé des équations exprimant l'égalité, à l'état d'équilibre, entre le prix de vente des différents produits et leur coût de production. Mais dans ses modèles subséquents, il considère les prix non plus comme des inconnues mais comme faisant partie des données du problème.

Le système d'équations de Léontief est aussi avons-nous dit une adaptation du modèle de Walras. Il est évident que ce modèle ne pouvait servir à des usages pratiques sans subir certaines transformations et en particulier un changement d'objectif.

Pour Walras, chaque produit, chaque service est considéré comme une unité indépendante, et le nombre d'équations de son système dépend du nombre de ces produits et services. Si l'économie d'un pays comprend par exemple 1.000 produits et 100 facteurs de production différents, et cela est un nombre bien inférieur à la réalité, il faudra établir un nombre d'équations égal à 2.199. Or, il est évident que même à l'aide des puissantes machines à calculer dont on dispose maintenant il serait bien difficile de résoudre pratiquement un tel système d'équations (1).

C'est pourquoi, Léontief renonce à considérer chaque marchandise et chaque service à part. Il déplace l'objet de son étude du produit à l'industrie, en groupant la multitude de produits en usage dans une société moderne en un groupe restreint d'industries indépendantes. Il réussit ainsi à réduire son système d'équations à un chiffre très raisonnable.

De ce changement d'objectif devait nécessairement découler une modification dans le contenu des équations. Walras ramenait les facteurs de production à leurs éléments essentiels : la terre, le travail, le capital. Cela est légitime quand on considère la production dans son ensemble et non pas chaque branche d'industrie à part, car les matières premières qui entrent dans la confection des différentes marchandises "sont elles-mêmes des produits obtenus soit par combinaison de services producteurs entre eux soit par application de services producteurs à d'autres matières premières desquelles on pourrait dire la même chose et ainsi de suite" (2).

Mais pour Léontief, les choses se présentent différemment. Il ne peut pas ramener comme Walras les matières premières à leurs éléments essentiels puisque les unités envisagées ne sont plus les produits, c'est-à-dire la production dans son ensemble, mais les industries dont chacune groupe un certain nombre de produits plus au moins homogènes. C'est pourquoi, au lieu de considérer que les facteurs de production ce sont les éléments naturels : la terre, le travail et le capital, il est amené à traiter chacun des facteurs de production utilisés dans chaque industrie comme les produits d'une autre industrie. Le travail lui-même est considéré comme le produit d'une industrie d'un genre particulier qu'il appelle "le secteur des ménages" (households sector).

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(1) Voir J. Balderston, Models of general Equilibrium, publié par O. Morgenstern dans son ouvrage : *Economic Activity Analysis*, p. 21.

(2) Walras, *op. cit.*, p. 215.

Ainsi le modèle de Walras faisait ressortir les rapports d'interdépendance qui existent entre les prix des différents produits et services, tandis que Léontief met plutôt l'accent sur les liens de mutuelle dépendance qui unissent les différentes industries. Ces liens sont déterminés par les conditions technologiques dominantes et sont plus au moins stables. Il y a un rapport, constant pour une certaine durée de temps, entre le volume de la production (output) dans chaque industrie et les quantités de produits des autres industries qu'elle utilise comme matière première (inputs).

Prenons l'exemple de l'industrie automobile (1). Pour chaque tranche de 1000 dollars de production nette, elle achète pour 133,6 dollars de métaux ferreux, 44,9 dollars de produits de fonderie en acier, 29,2 dollars d'équipement électrique, 30,7 dollars de métaux non ferreux, 11,3 dollars de produits chimiques, 22,3 dollars de produits textiles, etc... Il semble que ces achats pour mille dollars de production nette, varient peu d'une année à l'autre, à condition que soit éliminée l'influence des changements de prix.

En nous servant des chiffres ci-dessus on pourra calculer d'abord les différents rapports d'input-output, c'est-à-dire le rapport entre chacune des quantités de produits employés et le volume de la production de l'industrie automobile; puis on établira une relation entre l'input et l'output au moyen d'une équation linéaire. On posera de même des équations similaires pour les autres industries.

Soient X_1 la production totale (l'output) de l'industrie 1, X_2 la production totale de l'industrie 2 et ainsi de suite; $x_{11}, x_{12}, x_{13}, \ldots x_{1n}$, représenteront les quantités de produits de l'industrie 1 utilisés comme input par les industries 1, 2, 3,... n respectivement, $x_{21}, x_{22}, x_{23}, \ldots x_{2n}$, représenteront les quantités de produits de l'industrie 2 utilisés par les industries 1, 2, 3,... n respectivement.

$Y_1, Y_2, Y_3, \ldots Y_n$ représenteront respectivement la 'demande finale' pour les produits des industries 1, 2, 3,... n. Cette demande finale pourra comprendre les éléments suivants ou certains d'entre eux:

Le secteur des ménages, les exportations, les achats effectués par le gouvernement, les stocks constitués par les commerçants, etc.

Au moyen de ces symboles on pourra établir ainsi le tableau d'input-output :

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(1) Exemple cité par Alexandre Chabert dans son article : *Le système d'input-output de W. Léontief* publié dans "*Economie Appliquée*," Année 1950 No. 1.

Tableau d'input-output

		Industries consommatrices 1, 2, 3, ... n	demande finale	production totale
Industries Productrices	1	x_{11} x_{12} x_{13} ..... x_{1n}	Y_1	X_1
	2	x_{21} x_{22} x_{23} ..... x_{2n}	Y_2	X_2
	3	x_{31} x_{32} x_{33} ..... x_{3n}	Y_3	X_3
	.	. . . .	.	.
	.	. . . .	.	.
	.	. . . .	.	.
	n	x_{n1} x_{n2} x_{n3} x_{nn}	Y_n	X_n

On peut alors mettre le contenu de ce tableau sous forme d'équations simultanées en considérant que le produit total de chaque industrie moins les quantités de ce produit utilisées par les autres industries égale la demande finale pour l'industrie envisagée :

$$\left.\begin{aligned} X_1 - x_{11} - x_{12} - x_{13} - \ldots - x_{1n} &= Y_1 \\ - x_{21} + X_2 - x_{22} - x_{23} - \ldots - x_{2n} &= Y_2 \\ - x_{31} - x_{32} + X_3 - x_{33} - \ldots - x_{3n} &= Y_3 \\ \hline - x_{n1} - x_{n2} - x_{n3} - x_{nn} - \ldots + X_n &= Y_n \end{aligned}\right\} \quad (8)$$

On utilise ensuite des symboles pour exprimer les rapports d'input-output dans chaque industrie : les coefficients a_{11}, a_{12}, a_{13}, ... a_{1n} indiquent les quantités de produits de l'industrie 1 nécessaires pour obtenir une unité de produit dans les industries 1,2,3, ... n; successivement. De même, a_{21}, a_{22}, a_{23}, ... a_{2n} indiquent les quantités de produits de l'industrie 2 nécessaires pour obtenir une unité de produit dans les industries 1,2,3, ... n successivement.

$$\text{On a donc : } a_{11} = \frac{x_{11}}{X_1}, \; a_{12} = \frac{x_{12}}{X_2} \ldots a_{1n} = \frac{x_{1n}}{X_n}$$

$$a_{21} = \frac{x_{21}}{X_1}, \quad a_{21} = \frac{x_{21}}{X_1}, \ldots a_{n1} = \frac{x_{n1}}{X_1}.$$

Supposons, par exemple, que le produit total de l'industrie 1 soit de 10 millions de livres et que le montant des achats qu'elle effectue pour se procurer les produits dont elle a besoin de l'industrie 2 et de l'industrie 3 soit de 4 et 3 millions de livres respectivement. Les coefficients de production se calculeront ainsi :

$$a_{21} = \frac{4}{10} = \frac{2}{5} \; ; \; a_{31} = \frac{3}{10}$$

De cette définition du coefficient de production, on peut tirer la valeur des inputs en fonction de l'output de chaque industrie :

$$\text{si } a_{21} = \frac{x_{21}}{X_1}, \; a_{32} = \frac{x_{32}}{X_2} \ldots \text{ on aura: } x_{21} = a_{21} X_1 \; ; \; x_{32} = a_{32} X_2 \ldots$$

Et les équations (8) peuvent donc être formulées ainsi :

$$\left.\begin{aligned} X_1 - a_{11} X_1 - a_{12} X_2 - a_{13} X_3 \ldots - a_{1n} X_n &= Y_1 \\ - a_{21} X_1 + X_2 - a_{22} X_2 - a_{23} X_3 \ldots - a_{2n} X_n &= Y_2 \\ - a_{31} X_1 - a_{32} X_2 + X_3 - a_{33} X_3 \ldots - a_{3n} X_n &= Y_3 \\ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \\ - a_{n1} X_1 - a_{n2} X_2 - a_{n3} X_3 - a_{n4} X_4 \ldots - + X_n &= Y_n \end{aligned}\right\} \quad (9)$$

Les coefficients de production sont calculés d'après les statistiques se référant à une année de base et sont censés rester stables pendant une certaine durée de temps. Ils peuvent donc servir à calculer la production totale de chaque industrie pour les années antérieures ou subséquentes à l'année de base pourvu que le montant de la demande finale soit connu. Il suffit pour cela de résoudre le système d'équations simultanées (9) dont le nombre d'équations est égal au nombre d'inconnues : n.

Pour la solution de ce problème, on peut employer n'importe quelle méthode connue. Cependant il est préférable dans ce cas de faire usage du calcul matriciel. En invertissant la matrice des coefficients dans le système d'équations (9) on obtient :

$$\left.\begin{aligned} X_1 &= A_{11} Y_1 + A_{12} Y_2 + A_{13} Y_3 + \ldots A_{1n} Y_n \\ X_2 &= A_{21} Y_1 + A_{22} Y_2 + A_{23} Y_3 + \ldots A_{2n} Y_n \\ X_3 &= A_{31} Y_1 + A_{32} Y_2 + A_{33} Y_3 + \ldots A_{3n} Y_n \\ &\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \\ X_n &= A_{n1} Y_1 + A_{n2} Y_2 + A_{n3} Y_3 + \ldots A_{nn} Y_n \end{aligned}\right\} \quad (10)$$

Le système d'équations (10) a l'avantage de faire ressortir comment la production totale de chaque industrie ne dépend pas seulement de la demande finale pour les produits de cette industrie mais dépend aussi de la demande finale pour les autres produits (1).

Le modèle de Léontief peut être transformé en modèle *clos* c'est-à-dire indépendant des facteurs exogènes, en faisant de chacun des secteurs qui constituent la demande finale : ménages, gouvernement, commerce extérieur, stocks, une "industrie" utilisant une partie de la production des autres et leur fournissant aussi ses produits. Ainsi le secteur des ménages peut-être

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(1) A l'aide d'un exemple très simplifié nous allons exposer la méthode employée pour transformer un système d'équations de la forme (9) en équations de la forme (10).

Supposons que toutes les activités productives d'une communauté donnée puissent être groupées en deux industries seulement pour lesquelles nous posons les équations suivantes semblables à celles du système (9) :

$$\left.\begin{array}{l} X_1 - a_{11} X_1 - a_{12} X_2 = Y_1 \\ X_2 - a_{21} X_1 - a_{22} X_2 = Y_2 \end{array}\right\} \quad \text{ou} \quad \left.\begin{array}{l} (1 - a_{11}) X_1 - a_{12} X_2 = Y_1 \\ -a_{21} X_1 - (1 - a_{22}) X_2 = Y_2 \end{array}\right\} \quad (9')$$

La matrice de ces équations est :

$$[a] \quad \begin{bmatrix} (1 - a_{11}) & -a_{12} \\ -a_{21} & (1 - a_{22}) \end{bmatrix}$$

En désignant l'inverse de la matrice a par A, nous avons la relation suivante : $A \cdot a = I$ (ou I représente la matrice unitaire : $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

Nous pouvons donc écrire :

$$\begin{bmatrix} A_{11} & A_{12} \\ A_{21} & A_{22} \end{bmatrix} \cdot \begin{bmatrix} (1-a_{11}) & -a_{12} \\ -a_{21} & (1-a_{22}) \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

Ou en effectuant la multiplication :

$$\begin{bmatrix} (1-a_{11})A_{11} + (-a_{21})A_{12} & (-a_{12})A_{11} + (1-a_{22})A_{12} \\ (1-a_{11})A_{21} + (-a_{21})A_{22} & (-a_{12})A_{21} + (1-a_{22})A_{22} \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

D'où l'on tire les deux systèmes d'équations simultanées :

$$\begin{array}{ll} (1-a_{11})A_{11} + (-a_{21})A_{12} = 1 & (1-a_{11})A_{21} + (-a_{21})A_{22} = 0 \\ (-a_{12})A_{11} + (1-a_{22})A_{12} = 0 & (-a_{12})A_{21} + (1-a_{22})A_{22} = 1 \end{array}$$

En résolvant on trouve la valeur de A_{11}, A_{12}, A_{21}, A_{22}. On peut maintenant résoudre les équations (9') par le calcul matriciel. Pour cela, on les met sous la forme : $a \cdot X = Y$

Puis on multiplie les deux membres par l'inverse de la matrice a qui est A. Nous avons: $X = A \cdot Y$

$$\text{ou} \quad \begin{bmatrix} X_1 \\ X_2 \end{bmatrix} = \begin{bmatrix} A_{11} & A_{12} \\ A_{21} & A_{22} \end{bmatrix} \cdot \begin{bmatrix} Y_1 \\ Y_2 \end{bmatrix}$$

Ce qui donne :

$$\left.\begin{array}{l} X_1 = A_{11} Y_1 + A_{12} Y_2 \\ X_2 = A_{21} Y_1 + A_{22} Y_2 \end{array}\right\} \quad (10')$$

équations dont la forme est semblable au système d'équations (10) ci-dessus mentionnés.

considéré comme une industrie qui consomme une partie des différents produits et fournit aux autres industries un produit propre : le travail. Le commerce extérieur constitue, lui aussi, une industrie qui utilise une partie de la production des autres industries au moyen des exportations et leur fournit ses produits sous forme de marchandises importées. Il est à remarquer que dans ce cas, la demande finale est égale à *zéro*.

On peut reprocher à Léontief de supposer que les coefficients de production restent stables, alors qu'il est certain que les facteurs de production peuvent être combinés dans des proportions variables et que ces proportions varient en fait chaque fois que change le prix d'un de ces facteurs par rapport aux autres. Léontief ne nie pas la validité de ce principe de substitution ni la possibilité que se produisent des perfectionnements techniques, mais il estime que les changements dans la combinaison des facteurs de production sont pratiquement de peu d'importance si l'on envisage une période de temps assez courte (10 ans peut-être).

De même, on peut lui reprocher de n'utiliser, comme Walras que des fonctions de production linéaires ce qui donne une idée un peu trop simplifiée du processus de production. Ce processus consisterait, pour chaque industrie, à ajouter les unes aux autres, dans des proportions déterminées, certaines matières premières et certains services de main-d'œuvre et de capital. Cependant cette simplification ne semble pas avoir de grands inconvénients et les résultats pratiques obtenus au moyen des tableaux d'input-output sont très satisfaisants.

D'ailleurs pour éprouver la valeur de son système, Léontief construisit un modèle simplifié représentant les activités productives des Etats-Unis en 1939. Sur la base des données statistiques de cette année, il calcula les coefficients de production puis les appliqua à l'année 1929; ensuite en utilisant les données statistiques de cette année sur la demande finale pour les différents produits, il put évaluer, à l'aide de son système, le montant de la production totale des diverses industries. Il s'avéra que pour la plupart, ces chiffres ne différaient pas beaucoup du montant de production effective (1).

Les tableaux d'input-output peuvent rendre ainsi des services inappréciables dans le domaine de la planification économique. Les autorités chargées de l'établissement du plan peuvent se rendre compte, au moyen de ces tableaux si les buts qu'ils se sont assignés (les demandes finales qu'ils espèrent pouvoir satisfaire au terme de la durée du plan) sont compatibles ou non avec les possibilités de production dans les différentes industries. Il pourront ainsi

(1) Voir O. Eckstein : *The Input-output System, Its Nature and Use*. Article publié dans l'ouvrage de O. Morgenstern déjà cité, pp. 59 et s.

éviter les déficiences ou les surplus de matières premières qui résulteraient de telle ou telle politique.

Pour les problèmes de plein emploi, le système de Léontief a déjà fait ses preuves aux Etats-Unis et dans d'autres pays. Il permet de calculer la main-d'œuvre nécessaire pour arriver à un certain niveau de revenu national, ou bien quel doit être le montant des achats effectués par le gouvernement pour obtenir le plein emploi.

Il semble que grâce à cette nouvelle technique, on pourra désormais traiter convenablement de nombreux problèmes pratiques qui étaient jusque-là restés sans solution.

ACTUALITÉS

Décision du Président de la République portant promulgation de la loi No. 163 de 1957 sur les banques et le crédit.

Art. 1er. — Les dispositions de la loi ci-jointe sur les banques et le crédit sont applicables.

Art. 2. — Tout établissement assujetti aux dispositions de la loi ci-jointe et exerçant son activité lors de sa promulgation est tenu de présenter, dans les trois mois de son entrée en vigueur, une demande d'inscription au registre *ad hoc* auprès de la Banque Centrale, dans les conditions et formes prévues par les articles 20, 21 et 22.

Ces établissements seront exemptés des conditions visées à l'article 21, sous réserve de les remplir dans les délais, conditions et formes prévus par la loi No. 22 de 1957 édictant certaines dispositions pour l'exercice des opérations de banque.

L'enregistrement de l'établissement sera radié si celui-ci ne remplit pas les conditions prévues au présent article dans le délai imparti.

Art. 3. — Le Ministre des Finances et de l'Economie pourra exempter n'importe quelle banque exerçant ses activités lors de la promulgation de la présente loi de l'application de l'alinéa "D" de l'article 39, pour une période et aux conditions déterminées dans son arrêté.

Art. 4. — Le Ministre des Finances et de l'Economie exercera les attributions conférées à l'Organisme Economique par la loi No. 20 de 1957, et ce en ce qui concerne les questions relatives à la Banque Centrale.

Art. 5. — Les dispositions de l'article 17 sont applicables aux billets de banque émis par la National Bank of Egypt avant l'entrée en vigueur de la présente loi.

Art. 6. — Sont abrogées la loi No. 57 de 1951, portant création d'une Banque Centrale d'Etat, et toute disposition contraire à celles de la loi ci-jointe.

Art. 7. — La présente décision sera publiée au "Journal Officiel". Elle aura force de loi et entrera en vigueur trente jours après sa publication.

La présente décision sera revêtue du sceau de l'Etat et exécutée comme loi de l'Etat.

TITRE I

Les Banques et leur Contrôle

CHAPITRE I

La Banque Centrale

SECTION I. — Statuts de la Banque et son objet

Art. 1er. — La National Bank of Egypt est constituée Banque Centrale de l'Etat. Elle organisera la politique du crédit et la politique bancaire et veillera sur

leur mise à exécution conformément aux plans généraux de l'Etat, pour aider au renforcement de l'économie nationale et à la stabilisation de la monnaie égyptienne.

Aux fins d'assurer la réalisation de son objet, la Banque prendra les dispositions suivantes :

a) Influer sur l'orientation du crédit dans sa quantité, son genre et son taux, de manière à lui permettre de faire face aux besoins réels de l'activité commerciale, industrielle et agricole.

b) Prendre les mesures adéquates pour faire face aux perturbations économiques ou financières générales ou locales.

c) Exercer sur les établissements bancaires un contrôle devant leur assurer une situation financière saine.

d) Régir les réserves de l'Etat en or et en devises étrangères.

Art. 2. — La Banque Centrale aura un Conseil d'Administration pour exercer les pouvoirs conférés à la Banque par la présente loi.

Le Conseil sera formé d'un Gouverneur, qui le présidera, d'un sous-Gouverneur, d'un nombre de 3 membres non inférieur à trois ni supérieur à sept et de deux Délégués du Ministère des Finances et de l'Economie dotés des mêmes pouvoirs et droits que les autres membres.

Art. 3. — Le Gouverneur et le sous-Gouverneur seront nommés par décision du Président de la République pour une période de cinq ans renouvelable. Ils ne devront pas avoir d'autres occupations.

Les délégués du Ministère des Finances et de l'Economie seront nommés par arrêté du Ministre des Finances et de l'Economie.

Les autres membres du Conseil seront élus pour cinq ans par l'Assemblée Générale.

Art. 4. — Il faut que le Gouverneur, le sous-Gouverneur, et les membres du Conseil remplissent les conditions suivantes :

a) Etre, tous, Egyptiens de naissance;

b) N'avoir d'intérêts sérieux dans aucune des banques assujetties aux dispositions de la présente loi;

c) Jouir de tous leurs droits civils et politiques.

Art. 5. — Une décision du Président de la République déterminera les statuts de la Banque Centrale.

Art. 6. — Le Conseil d'Administration exercera les pouvoirs conférés à la Banque en vertu de la présente loi.

Art. 7. — Le Conseil d'Administration se réunira sur la convocation du Gouverneur pour examiner les questions qui lui seront soumises.

Il se réunira également sur une demande présentée par la moitié des membres ou sur la demande des délégués du Ministère des Finances et de l'Economie.

Le Conseil devra se réunir deux fois au moins par mois.

La réunion du Conseil ne sera valable qu'en présence de la moitié au moins des membres, y compris l'un des délégués du Ministère des Finances et de l'Economie.

Les décisions seront prises à la majorité absolue. En cas de partage, la voix du Président sera prépondérante.

Art. 8. — Le Gouverneur gérera tous les intérêts de la Banque conformément aux décisions du Conseil d'administration.

Art. 9. — La Banque Centrale établira un relevé hebdomadaire sur sa situation financière comparée à celle de la semaine précédente, conformément au modèle adopté par son Conseil d'Administration d'accord avec le Ministre des Finances et de l'Economie.

Ce relevé sera publié au "Journal Officiel" et une copie signée du Gouverneur en sera adressée au Ministre des Finances et de l'Economie.

Art. 10. — La vérification des comptes annuels de la Banque sera confiée à deux Censeurs choisis par le Ministre des Finances et de l'Economie.

La Banque devra mettre à la disposition des Censeurs tous les livres, pièces et renseignements qu'ils jugent nécessaires à l'accomplissement de leur tâche.

Art. 11. — Les bénéfices nets découlant de l'émission des billets de Banque, après déduction des frais approuvés par les Censeurs, seront répartis entre le Gouvernement et la Banque, à raison de 85% pour le Gouvernement et de 15% pour la Banque; et tout surplus provenant de la réévaluation de la réserve or figurant dans la couverture de l'émission reviendra au Gouvernement.

Art. 12. — Après le report aux réserves et aux bénéfices reportés, conformément aux décisions du Conseil d'Administration, les bénéfices nets de l'exercice seront affectés à la répartition aux actionnaires d'un dividende, dans les limites de 20% de la valeur nominale de l'action.

SECTION II. — **Rapports de la Banque avec le Gouvernement**

Art. 13. — La Banque agira en tant que banquier du Gouvernement, sans aucune rémunération pour les services qu'elle lui accomplira.

La Banque pourra, après approbation de son Conseil d'Administration, effectuer, aux mêmes conditions, les opérations bancaires concernant les autres personnes morales publiques.

Art. 14. — La Banque assumera aux lieu et place du Gouvernement, la gestion, l'émission, le service et l'amortissement de la Dette Publique.

La Banque donnera ses conseils au Gouvernement avant la conclusion d'emprunts locaux ou à l'étranger.

Art. 15. — La Banque pourra faire des prêts au Gouvernement pour couvrir des déficits saisonniers du Budget, à condition que ces prêts ne dépassent pas 10% de la moyenne des recettes du Budget Général au cours des trois années précédentes. Ces prêts seront faits pour une période de trois mois renouvelable pour trois autres mois et ainsi de suite, à condition qu'ils soient remboursés dans douze mois au plus tard de la date du prêt.

Les conditions régissant ces prêts seront établies d'un commun accord entre le Gouvernement et la Banque, en considération de la situation de la monnaie et du crédit en vigueur au moment du prêt.

SECTION III. — **L'Emission des Billets de Banque**

Art. 16. — Seule la Banque Centrale aura le monopole d'émission des billets de Banque. Le Ministre des Finances et de l'Economie — après avoir consulté la

Banque — fixera les taux des billets pouvant être émis, leur dimension, leur dessin et les autres spécifications.

Ces billets devront porter la signature du Gouverneur de la Banque Centrale.

Art. 17. — Les billets émis par la Banque Centrale auront une force libératoire illimitée.

Art. 18. — Les billets de banque mis en circulation devront être représentés, en permanence et pour leur montant intégral, par une provision d'or, de devises étrangères, de Bons étrangers, d'obligations et de bons du Gouvernement Egyptien, de titres égyptiens garantis par le Gouvernement Egyptien et d'effets de commerce escomptables.

La quantité de l'or nécessaire à la couverture de l'émission sera fixée par décision du Président de la République; les genres et les proportions des autres valeurs seront fixées par arrêté du Ministre des Finances et de l'Economie après avis de la Banque.

CHAPITRE 2

Les Banques

SECTION 1. — Dispositions générales

Art. 19. — Il est interdit à tous particulier, organisme ou établissement, non enregistrés conformément, aux dispositions de la présente loi, d'exercer d'une façon principale et habituelle n'importe quelle opération de Banque.

Sont exceptées de ce qui précède :

a) Les Institutions publiques exerçant une de ces opérations dans les limites de leur décision de constitution;

b) les maisons de prêts sur gage;

c) les Sociétés immobilières et autres Institutions s'occupant du lotissement de terrains ou de la construction et de la vente à termes des bâtiments.

Art. 20. — La demande d'enregistrement doit être présentée à la Banque Centrale, dans les conditions et formes déterminées par le règlement d'exécution après versement du droit fixé par ce règlement, dans les limites de L.E. 100 pour le Siège Social et de L.E. 50 pour chaque Succursale ou Agence. Le produit de ce droit sera versé dans le compte spécial concernant le Contrôle et la Surveillance.

Art. 21. — L'enregistrement se fera dans un Registre ad hoc auprès de la Banque Centrale, aux conditions suivantes :

a) Il faut que l'établissement ait la forme de société anonyme égyptienne ou de société anonyme égyptienne en formation et que toutes ses actions soient nominales et, appartenant toujours à des Egyptiens;

b) Il faut que son capital versé ne soit pas inférieur à L.E. 500.000,

c) Il faut que les membres de son Conseil d'Administration et les responsables de sa gestion soient Egyptiens;

d) Il faut que le Conseil d'Administration de la Banque Centrale approuve son enregistrement,

Art. 22. — Le Conseil d'Administration de la Banque Centrale pourra — après accord du Ministre des Finances et de l'Economie — refuser la demande d'enregistrement pour l'une des raisons suivantes:

a) En cas de violation à l'une des dispositions de la présente loi, de son règlement d'exécution ou de tous autres lois ou règlements;

b) si l'existence de la banque n'est pas en accord avec l'intérêt de l'économie générale ou les conditions concernant la localité dans laquelle la création de la banque est projetée;

c) si la dénomination commerciale de la banque est identique ou si elle est similaire à celle d'une autre banque ou d'un autre établissement au point de prêter à confusion.

La décision, motivée, du rejet sera notifiée au requérant par lettre recommandée avec avis de réception.

A défaut par le requérant de compléter la demande et ses annexes ou d'exécuter les prescriptions du Conseil d'Administration dans les trois mois de la notification à lui faite, il sera considéré comme ayant renoncé à sa demande.

Dans tous ces cas, le requérant n'aura pas droit au remboursement des droits payés.

Les décisions du Conseil d'Administration portant admission des demandes d'enregistrement seront publiées au "Journal Officiel".

Art. 23. — Il est interdit à tout établissement non enregistré conformément aux dispositions de la présente loi d'employer le mot "Banque" ou son synonyme ou aucun autre terme similaire en aucune langue, tant dans sa dénomination spéciale ou sa raison de commerce que dans sa propagande.

Art. 24. — Toute modification à faire dans l'acte constitutif ou les statuts de la Société devra être notifiée à la Banque Centrale, de même que pour tout changement dans les indications fournies au moment de la présentation de la demande d'enregistrement.

La notification sera faite dans les formes prévues au Règlement d'exécution. Une décision sera prise par le Gouverneur de la Banque Centrale au sujet de cette notification dans les conditions établies pour les décisions concernant les demandes d'enregistrement.

Ces modifications ne pourront être mises en vigueur qu'après que mention en aura été faite en marge du registre.

Art. 25. — Deux Censeurs vérifieront les comptes de la Banque. Tout Censeur ne pourra vérifier simultanément les comptes de plus de deux banques. Il lui est également interdit d'obtenir de la Banque dont il vérifie les comptes un emprunt, avec ou sans garantie.

Art. 26. — Le Censeur devra notifier à la banque, par écrit, tous déficit, erreur ou irrégularité dignes d'être signalés.

Le Rapport annuel du Censeur devra mentionner les moyens qui lui ont permis de s'assurer de l'existence de l'actif, ainsi que les modes de son évaluation et d'estimation des engagements en cours.

Il devra également signaler dans son rapport si les opérations qu'il a vérifiées constituent une infraction à l'une quelconque des dispositions de la présente loi, des règlements ou des arrêtés pris pour son exécution.

Il devra envoyer une copie de ce rapport au Gouverneur de la Banque Centrale.

Art. 27. — Les banques sont tenues de présenter à la Banque Centrale des relevés mensuels sur leur situation financière, dans les délais et suivant les modèles prévus au règlement d'exécution.

Art. 28. — Toute banque est tenue de remettre, à la Banque Centrale, une copie de tout rapport sur ses activités soumis aux actionnaires, dans 3 jours au plus tard de la date de sa présentation, et une copie du procès-verbal de toute assemblée générale des actionnaires, dans 30 jours de la date de l'assemblée.

Art. 29. — Toute banque est tenue de fournir à la Banque Centrale tous renseignements et éclaircissements qu'elle demandera sur les opérations pratiquées.

La Banque Centrale pourra — le cas échéant et après approbation du Ministre des Finances et de l'Economie — déléguer un ou plusieurs fonctionnaires sur une liste approuvée par le Ministre des Finances et de l'Economie, pour prendre communication des livres et registres de la banque, au siège de celle-ci.

Art. 30. — La banque devra posséder en Egypte des fonds d'une valeur égale, au moins, au montant de ses engagements exigibles en Egypte à ses créanciers, plus une somme non inférieure au minimum du capital versé.

Aux fins d'application de cette disposition, seront compris dans les fonds existants en Egypte les fonds que la banque sera autorisée à conserver à l'étranger.

Art. 31. — Les banques pourront former entre elles une ou plusieurs unions, dont les statuts devront être approuvés par le Conseil d'Administration de la Banque Centrale.

L'union aura pour mission d'établir un accord sur les taux des services bancaires, ou l'application de régimes et de formalités unifiés, et d'examiner les questions communes et autres intéressant les membres.

Toute banque aura droit d'adhésion à l'union, à condition de s'engager à en observer les statuts.

Le Gouverneur de la Banque Centrale nommera, auprès de l'union, un délégué qui aura le droit d'assister à ses réunions et de participer à ses discussions, sans avoir droit délibératif.

Les décisions de l'union concernant les taux des services bancaires seront soumises au Conseil d'Administration de la Banque Centrale, qui pourra les approuver, les rejeter ou les modifier. La décision qu'elle prendra à cet effet sera définitive.

Art. 32. — Aucune banque ne pourra fusionner avec une autre banque à moins d'une autorisation préalable du Conseil d'Administration de la Banque Centrale.

Le Règlement d'exécution déterminera les formalités devant être appliquées dans ce cas.

Art. 33. — Aucune banque ne pourra suspendre ses activités à moins d'une autorisation préalable du Conseil d'Administration de la Banque Centrale.

Cette autorisation sera donnée après qu'il aura été constaté que la banque s'est définitivement libérée de ses engagements envers ses déposants et autres créanciers, dans les conditions et formes déterminées par le Règlement d'exécution.

Art. 34. — L'enregistrement de la banque pourra être radié dans les cas suivants:

a) s'il est constaté qu'elle violait les dispositions de la présente loi ou de ses Règlements d'exécution et qu'elle n'a pas fait cesser l'état de contravention dans les délais et conditions fixés par le Conseil d'Administration de la Banque Centrale;

b) si elle adopte une politique de nature à porter préjudice à l'économie générale;

c) si elle suspend l'exercice de son activité;

d) si elle est déclarée en faillite ou mise en liquidation;

e) si elle s'est incorporée dans une autre banque;

f) s'il est constaté que l'enregistrement avait été effectué en base de fausses données fournies par la banque.

La radiation se fera par décision du Conseil d'Administration de la Banque Centrale, à la majorité des deux tiers des voix et après approbation du Ministre des Finances et de l'Economie.

La décision sera publiée au "Journal Officiel" dans 10 jours de la date à laquelle elle aura été prise.

Dans les cas visés aux parag. (a), (b) et (f) la décision de radiation ne sera prise qu'après, qu'une lettre recommandée avec avis de réception aura été adressée à la Banque, l'invitant à présenter ses moyens de défense, par écrit, dans deux semaines de la date de la notification.

Art. 35. — La décision de radiation de l'enregistrement aura pour effet de faire cesser l'activité de la banque. Dans ce cas, le Conseil d'Administration de la Banque Centrale pourra ou bien décider la liquidation immédiate de la Banque, ou bien lui permettre d'effectuer les opérations en cours au moment de la radiation, aux conditions qu'il fixera.

Art. 36. — Il sera perçu de toute banque de commerce enregistée conformément aux dispositions de la présente loi un droit annuel de 10 millièmes par L.E. 100 du total des dépôts au 31 décembre de chaque année. Quant aux autres banques, le droit sera de 20 millièmes par L.E. 100 du total des emprunts que la banque aura obtenus durant l'année financière.

Ce droit devra être acquitté, au cours du mois de Janvier de chaque année, pour les 21 mois précédents.

La Banque Centrale portera ce droit dans un compte spécial sur lequel aucune dépense ne pourra être effectuée que dans les buts qui feront l'objet d'un accord avec le Ministre des Finances et de l'Economie.

Art. 37. — Le Conseil d'Administration de la Banque Centrale établira, pour le Contrôle et la Surveillance des banques conformément aux dispositions de la présente loi, des règles générales ayant notamment pour objet d'organiser les questions suivantes :

a) Création et organisation d'un Service de Contrôle sur les banques;

b) Mode à suivre pour l'évaluation des divers postes de l'actif des banques;

c) Fixation des proportions devant être observées entre le montant des avances et la valeur de leur garantie et détermination de la nature de la garantie et des échéances;

d) Fixation du taux maximum des intérêts créditeurs et débiteurs et des intérêts moratoires;

e) Désignation des indications devant être publiées et du mode de publicité.

SECTION II. — **Dispositions Relatives au Contrôle des Banques de Commerce**

Art. 38. — Est considéré comme banque de commerce tout établissement qui reçoit habituellement des dépôts payables à vue ou dans un délai ne dépassant pas un an.

Art. 39. — Il est interdit aux banques de commerce d'exercer les opérations suivantes :

a) Conclure des contrats d'achat, de vente ou d'échange sur meubles ou immeubles, sauf :

1. — l'immeuble affecté aux services de la banque ou au bien-être de son personnel;

2. — le meuble ou l'immeuble dont la propriété sera acquise à la banque en règlement d'une créance due par un tiers, à condition que la banque en dispose dans un an à partir de la date d'acquisition du meuble et de cinq ans pour ce qui concerne l'immeuble. Le Conseil d'Administration de la Banque Centrale pourra, le cas échéant, proroger ces délais;

b) émettre des bons payables à vue au porteur;

c) accepter des actions de capital de la banque en garantie d'une avance, ou passer des contrats sur ces actions ou en devenir propriétaire, à moins que la propriété de ces actions n'ait été acquise à la banque en règlement d'une créance due par un tiers, étant entendu que la banque devra vendre ces actions dans un an de la date de leur acquisition;

d) posséder des actions de Sociétés Anonymes dont la valeur dépasse 25% du capital versé de la Société, à condition que la valeur nominale de ces actions possédées par la banque ne dépasse pas son capital versé et ses réserves.

Le Ministre des Finances et de l'Economie pourra, le cas échéant, augmenter deux limites.

Art. 40. — Le Conseil d'Administration de la Banque Centrale pourra établir des règles générales à suivre pour le contrôle des banques de Commerce. Ces règles pourront, en considération de la situation du crédit, porter sur l'organisation des questions suivantes :

a) fixer la proportion et la nature des fonds liquides devant être conservés par les banques de commerce;

b) désigner les investissements interdits aux banques de commerce; fixer les réserves nécessaires pour faire face aux fortes fluctuations de certains éléments de l'actif et déterminer les limites maxima des avances des banques de commerce et de leurs investissements, en ce qui concerne certaines catégories d'avances et d'investissements.

Art. 41. — Toute banque de commerce devra conserver auprès de la Banque Centrale, sans intérêt, un solde créditeur représentant une certaine proportion des dépôts mis chez elle, laquelle sera déterminée par la Banque Centrale.

En cas d'augmentation de cette proportion, la Banque Centrale devra donner donner aux banques de commerce un délai minimum de trente jours de la date à laquelle l'augmentation leur aura été modifiée.

Art. 42. — Si le solde de la banque de commerce auprès de la Banque Centrale devient inférieur au montant dû en vertu de l'article précédent, la Banque Centrale

pourra effectuer sur le montant du solde de la banque de commerce un prélèvement ne dépassant pas un quart pour cent du déficit. Cette somme sera ajoutée au compte relatif au contrôle des banques de commerce.

Si le déficit du solde dépasse 5% du montant dû ou si le déficit continue pendant plus d'un mois, le Conseil d'Administration de la Banque Centrale pourra imposer à la Banque de Commerce de cesser toute nouvelle avance jusqu'à couverture du déficit.

Toute banque de commerce est tenue de fournir à la Banque Centrale les informations relatives à l'application de cet article d'après les modèles et dans les délais qui seront déterminés par le Conseil d'Administration de la Banque Centrale.

SECTION III. — Dispositions Relatives au Contrôle des Banques autres que les Banques de Commerce

Art. 43. — Les banques non commerciales s'entendent des banques dont l'activité principale consiste dans le financement immobilier, agricole ou industriel et dont la réception des dépôts à vue ne constitue pas un aspect de leur activité essentielle.

Art. 44. — Le Conseil d'Administration de la Banque Centrale établira des règles spéciales pour le contrôle de chaque catégorie des banques non commerciales. Ces règles traiteront notamment de ce qui suit :

a) les conditions de relégation des dépôts;

b) les règles concernant la participation à la constitution d'autres entreprises ou à l'achat de leurs actions;

c) la limite maximum du montant des obligations qu'elles pourront émettre et les conditions de cette émission.

Art. 45. — Il est interdit aux banques immobilières d'acheter les immeubles qui leur sont hypothéqués, sauf en cas d'exécution sur ces immeubles par application des dispositions des Codes de procédure civile et commerciale.

Les banques devront vendre ces immeubles dans 5 ans de la date de leur acquisition. Ce délai pourra être prorogé par décision de la Banque Centrale.

Art. 46. — Les banques immobilières ne sont pas autorisées à accorder des prêts pour une période supérieure à trente ans.

Art. 47. — Les prêts faits par les banques industrielles auront un privilège sur les établissements industriels et commerciaux, ainsi que sur les machines et outils employés dans l'activité industrielle ou commerciale.

Ce privilège devra être inscrit, et il aura rang à la date de son inscription.

TITRE II

Réglementation du Crédit

CHAPITRE I

Moyens de Réglementer le Crédit

Art. 48. — La Banque Centrale pratiquera des opérations de crédit avec les banques assujetties à la présente loi dans les formes et conditions déterminées par le Conseil d'Administration de la Banque Centrale.

Le Conseil fixera le taux d'escompte et les taux d'intérêts suivant la nature des opérations, leur durée et leur degré de nécessité, conformément à la politique monétaire et du crédit.

Ces taux seront publiés de la manière indiquée par le Conseil.

Art. 49. — Le Ministre des Finances et de l'Economie déterminera, en accord avec le Conseil d'Administration de la Banque Centrale, les opérations commerciales ordinaires que la banque pourra effectuer.

Art. 50. — En cas de perturbation financière ou d'autre éventualité pouvant influer sur la stabilité du crédit ou qui exige de faire face à des nécessités urgentes sur le marché financier, la Banque Centrale pourra consentir des avances exceptionnelles aux banques avec la garantie d'un élément quelconque de leurs actifs à désigner par le Conseil d'Administration de la Banque, sous réserve que ces avances soient assujetties en ce qui concerne leur échéance et les autres conditions aux règles établies par le Conseil précité.

Art. 51. — La banque pourra acheter ou vendre sur le marché libre (ouvert) les titres du Gouvernement Egyptien et les titres garantis par le Gouvernement, ainsi que les obligations désignées par son Conseil d'Administration, les lettres de change et les billets à ordre et autres effets de commerce. Ces opérations seront effectuées en vue d'augmenter ou de réduire les fonds manipulés par les banques de commerce ou autres conformément à la politique monétaire et du crédit.

Art. 52. — La banque pourra garantir les prêts et les investissements conclus avec des institutions ou des entreprises égyptiennes, étrangères ou internationales, dans les formes et conditions qui feront l'objet d'un accord avec le Ministre des Finances et de l'Economie.

CHAPITRE II

Statistiques du Crédit

Art. 53. — Est créée à la Banque Centrale une Direction Centrale pour recueillir les statistiques du Crédit bancaire.

Art. 54. — Les banques et autres établissements qui seront désignés par arrêté du Ministre des Finances et de l'Economie devront communiquer à cette Direction la situation de chaque client jouissant de facilités de crédit dépassant le montant fixé par décision du Conseil d'Administration de la Banque Centrale.

Art. 55. — La Direction Centrale des statistiques du crédit bancaire dressera un relevé global des facilités de crédit accordées à chaque client par les banques et établissements sans mention des noms de ces banques et établissements.

Tous Banques et établissements pourront prendre connaissance du relevé global concernant n'importe quel client qui demande des facilités de crédit ou requérir un extrait de ce relevé global, dans les formes et conditions qui feront l'objet d'une décision du Conseil d'Administration de la Banque Centrale.

TITRE III

Sanctions

Art. 56. — Toute infraction aux dispositions des arts. 19 et 23 de la présente loi est passible de l'emprisonnement et d'une amende non inférieure à L.E. 500 ni supérieure à L.E. 5.000 ou de l'une de ces deux peines.

En cas de récidive, l'emprisonnement et l'amende seront simultanément prononcés.

Dans tous les cas, le tribunal ordonnera la publication de l'extrait du jugement de condamnation dans un ou plusieurs journaux, ou décidera qu'il soit rendu public par n'importe quel autre moyen, et ce, aux frais du condamné.

Art. 57. — Le défaut de fournir les indications visées aux articles 27, 28 et 29 de la présente loi dans les délais fixés, est passible d'une amende ne dépassant pas L.E. 1.000.

La même peine sera prononcée en cas d'abstention de présenter les livres-registres, pièces et documents, aux délégués qui ont droit de communication. La consignation de ces pièces sera en même temps prononcée.

Dans les deux cas précédents des astreintes pourront être prononcées.

Art. 58. — Quiconque aura, sciemment, dans un but frauduleux, mentionné des faits inexacts ou dissimulé certains faits dans les relevés, procès-verbaux, ou autres pièces devant être produits à la Banque Centrale par application de la présente loi, sera puni de l'emprisonnement et d'une amende non inférieure à L.E. 100 ni supérieure à L.E. 1000 ou de l'une de ces deux peines.

Art. 59. — Toute infraction aux dispositions des articles 24, 33 et 39 de la présente loi est passible d'une amende non inférieure à L.E. 100 ni supérieure à L.E. 1.000.

Art. 60. — Toute infraction aux dispositions d'obligation ou d'interdiction mentionnées dans la présente loi, ou les règlements ou arrêtés pris pour son exécution est passible d'une amende ne dépassant pas L.E. 500.

Art. 61. — En cas d'infraction commise par une société ou une association, le responsable sera l'associé responsable, le directeur ou l'administrateur-délégué ou le président du conseil d'administration, selon le cas.

Art. 62. — Les fonctionnaires de la Banque Centrale désignés par arrêté du Ministre des Finances et de l'Economie, sur la demande du Gouverneur de la Banque Centrale, sont investis de la qualité d'officiers de police judiciaire en ce qui concerne l'exécution de la présente loi et des règlements et arrêtés pris pour son exécution.

Art. 63. — Sans préjudice des peines plus graves prévues par les autres lois, est passible de l'emprisonnement pour une période ne dépassant pas deux ans et d'une amende non inférieure à L.E. 100 ni supérieure à L.E. 500 ou de l'une de ces deux peines tout fonctionnaire qui, chargé de l'exécution des dispositions de la présente loi, révèle n'importe quels indications ou renseignements qu'il a obtenus par ses fonctions.

Art. 64. — Dans les infractions prévues par ce titre, le tribunal pourra ordonner la publication de l'extrait du jugement de condamnation dans un ou plusieurs journaux, ou décider qu'il soit rendu public par n'importe quel autre moyen et ce aux frais du condamné.

Art. 65. — L'action publique pour les infractions prévues par la présente loi ne pourra être introduite que sur autorisation du Ministre des Finances et de l'Economie ou de celui qu'il aura délégué.

Décision du Président de la République portant promulgation de la loi No. 146 de 1956, sur les statuts de l'"Organisme du Canal de Suez".

Art. 1er. — Sont applicables les dispositions de la loi, ci-jointe, relative aux "Statuts de l'Organisme du Canal de Suez".

Art. 2. — Est abrogé l'article 2 de la loi No. 285 de 1956 ainsi que toute disposition contraire à celles de la loi ci-jointe.

Art. 3. — La présente décision sera publiée au "Journal Officiel" et aura force de loi.

Le Conseil d'Administration de l'Organisme du Canal de Suez prendra les arrêtés et règlements nécessaires à son exécution. Elle entrera en vigueur dès sa publication.

La présente décision sera revêtue du sceau de l'Etat et exécutée comme loi de l'Etat.

STATUTS DE L'ORGANISME DU CANAL DE SUEZ

Art. 1er. — Est institué un organisme public dénommé "Organisme du Canal de Suez".

Art. 2. — L'Organisme du Canal de Suez aura une personnalité morale autonome.

Art. 3. — L'Organisme du Canal de Suez aura un Conseil d'Administration, dont la nomination des membres, leur révocation et la fixation de leur rémunération feront l'objet d'une décision du Président de la République.

Art. 4. — Une décision du Président de la République désignera le président du Conseil d'Administration de l'"Organisme du Canal de Suez", les administrateurs-délégués et le directeur général et fixera leur rémunération.

Art. 5. — L'"Organisme du Canal de Suez" est chargé des affaires du service du Canal, de sa gestion, de son exploitation, de son entretien et de son amélioration. Ces attributions comprennent le service du Canal dans les limites et dans l'état où il se trouvait lors de la promulgation de la loi No. 285 de 1956 portant nationalisation de la Compagnie du Canal de Suez.

L'Organisme pourra effectuer les projets jugés nécessaires et se rapportant ou liés au service du Canal, participer à leur construction ou les encourager.

Art. 6. — L'Organisme appliquera les méthodes d'administration et d'exploitation adéquates, telles qu'elles sont en vigueur dans les entreprises commerciales, sans être lié par les règles et formes gouvernementales.

Agr. 7. — L'Organisme est seul compétent pour prendre et exécuter les règlements concernant la navigation dans le Canal de Suez, ainsi que tous autres règlements nécessaires au bon fonctionnement du service.

Art. 8. — L'Organisme aura un budget autonome, qui sera établi d'après les règles en vigueur dans les entreprises commerciales, sans préjudice du contrôle de la Cour des Comptes sur le compte définitif de l'Organisme.

L'exercice financier de l'Organisme commence le 1er Juillet et se termine fin juin de chaque année. Le budget et le compte définitif de l'Organisme seront approuvés par décision du président de la République.

Art. 9. — L'"Organisme du Canal de Suez" administrera le port de Port-Saïd en tant que partie intégrante du service du Canal, et y surveillera toutes les opérations maritimes.

Art. 10. — L'Organisme du Canal de Suez établira et percevra sur la navigation et le passage au Canal, les droits de navigation, de pilotage, de remorquage, d'amarrage et autres, conformément aux lois et règlements.

Art. 11. — L'Organisme aura dans l'accomplissement de ses obligations et l'exercice de ses attributions, tous les pouvoirs nécessaires, notamment, l'acquisition de la propriété des terres et immeubles par n'importe quelle manière y compris l'expropriation pour cause d'utilité publique. L'Organisme pourra donner en location des terres et immeubles lui appartenant et prendre en location des terres et immeubles appartenant à des tiers, soit pour réaliser les objectifs pour lesquels il a été constitué, pour assurer le bien-être de ses fonctionnaires et ouvriers ou pour exécuter les projets et les services se rapportant au service du Canal ou nécessaires à la bonne marche du travail, tels que les installations d'eau, d'énergie électrique, de routes, etc...

Art. 12. — Les biens de l'Organisme sont des biens privés.

Art. 13. — En vue de mettre l'Organisme à même de faire face à ses obligations et d'assurer la bonne marche du travail dans le service, l'Organisme jouira, quant à ses importations de machines et matériel nécessaires de l'exonération des formalités prévues par les lois et règlements douaniers en vigueur, et il sera également dispensé d'obtenir les divers permis y visés.

Une décision du Président de la République réglementera le mode d'évaluer les droits dus sur les importations de l'Organisme et organisera les rapports entre ce dernier et l'Administration des Douanes.

Art. 14. — L'Organisme ne pourra prendre aucune mesure contraire aux dispositions de la Convention du 29 Octobre 1888 garantissant le libre usage du Canal maritime de Suez ou la Déclaration du gouvernement égyptien du 25 Avril 1957 concernant le régime du transit à travers le Canal de Suez, qui a été enregistrée au Secrétariat de l'Organisation des Nations Unies.

Art. 15. — L'Organisme ne pourra accorder à aucun navire ou à aucune personne, physique ou morale, n'importe quels avantage ou privilèges non accordés à d'autres navires ou personnes, physiques ou morales, dans les mêmes cas. Il ne pourra traiter différemment ni privilégier l'un ou l'autre de ses clients ni priver l'un d'eux ni le préférer à d'autres.

Art. 16. — Demeureront applicables tous régimes, règles, règlements financiers, administratifs et comptables en vigueur dans l'Organisme, qui ne sont pas incompatibles avec les dispositions de la présente loi, jusqu'à ce qu'ils soient modifiés, abrogés ou remplacés.

Art. 17. — En attendant que soient rendus les règlements comportant statuts des fonctionnaires, des employés et des ouvriers de l'Organisme, le Conseil d'administration, ou qui pour lui, exercera, dans les limites du strict besoin du travail, tous les pouvoirs nécessaires à la nomination et au choix des fonctionnaires techniques et administratifs, à la détermination de leur ancienneté et de leurs traitements et à leur rattachement aux divers services, sections et bureaux.

Art. 18. — La présente loi ne portera pas atteinte aux droits ou obligations du Gouvernement Egyptien, découlant de la Convention de Constantinople en date du 29 Octobre 1888, ni à la Déclaration du Gouvernement Egyptien en date du 25 Avril 1957, ni à tout autre instrument international dans lequel l'Egypte est partie.

INDUSTRIAL CONCENTRATION

At the request of the Royal Commission on Canada's Economic Prospects, The Canadian Bank of Commerce prepared for the Commission a Study of industrial concentration in industry in the United States, the United Kingdom and Canada. The following — published by courtesy of the Bank — is a review of the problem of industrial concentration.

Industrial concentration is a term used to describe the degree to which control of an industry is concentrated in the hands of one or a few firms. Where a monopoly, for example, clearly exists, concentration is high. Where two large firms are found competing against each other, a situation technically termed *duopoly*, concentration again is high however fiercely they may, from time to time, compete. Yet a third situation may be found where more than two large firms are in competition, often with a number of smaller firms sharing the market. This is known as *oligopoly*, and here again concentration may be high.

The importance of the concept of industrial concentration is two-fold. In the first place, it is usually assumed that were concentration is high the possibility, if not the probability, of collusion, followed by monopoly pricing, exists. The classical economists, who laid the foundation of the laissez-faire economy, described how monopoly power results in less than the optimum use of resources, with the result that total economic welfare is not as great as can be achieved under conditions of perfect competition. It follows from this that a high degree of concentration may result in less than the maximum possible economic welfare. Secondly, a high degree of industrial concentration implies the existence of a concentration of power within the community which is not susceptible to the normal process of democratic control. This raises questions of social and political morality beyond the scope of economic enquiry. Nevertheless, the task of finding the best possible answers to such questions may be eased by the provision of all the information available, together with an analysis of the information which gives a guide to its economic significance.

The collection of data bearing on industrial concentration is therefore of importance in the consideration of policy regarding firms producing under monopolistic or oligopolistic conditions. This, however, is only one aspect of the problem. The assumption that high concentration necessarily implies monopoly power calls for re-examination, in order that the degree of concentration revealed by the data may be fairly assessed. It may, in addition, be helpful to reformulate the principles upon which policies regarding industrial concentration in Canada are based.

On the whole, monopolies in Canada exist only in special cases and with government blessing. Among the examples which may be quoted are the domestic scheduled air services, the trans-Canada natural gas pipeline, and the operations of the Canadian Wheat Board. In these instances, concentration is obviously high. Otherwise, under conditions of a free economy, any producer who manufactures a new product in

Canada will in course of time find that he has competitors, unless he obtains government protection in the restriction of new entry to the industry and the exclusion of imports. The fundamental significance of monopoly, in relation to the problems of industrial concentration, is that the monopolist must have *complete control of the entire market*. If he has not, then however high the degree of industrial concentration from the point of view of productive facilities, he lacks in some measure the concentration of power which it is the concern of policy to keep under review.

The same principle is true in the case of the oligopolist, i.e., the producer who when fixing price or output must consider the probable reactions of a few other large competitors and possibly of a large number of smaller ones. (Duopoly is a special case, probably unreal, which need not be considered here). This type of industrial structure may be said to be characteristic of the capitalistic economy, especially in a geographically large area. Where three or four firms among them control the predominant part of the supply of any product, there is an *a priori* case for assuming that they constitute an oligopoly, and that they therefore possess, potentially at least, a concentration of economic power. Again, an industry consisting of a few large firms and a number of smaller ones exhibits a high concentration ratio. It is important, however, to bear in mind that an apparent high concentration ratio does not by any means necessarily imply the existence of a true oligopoly, and therefore the highly concentrated industry may not, in fact, possess the concentration of power customarily attributed to it.

There are two reasons for this. In the first place, the large producers in an industry may not have the control over the market which the concentration ratio might imply. Unless the entire industry is protected by a high tariff barrier, competing imports offer a constant threat to security of the market. Moreover, in many industries the availability of substitutes and the existence of a multitude of alternative attractions for the consumer's dollar offer a degree of competition unrevealed by the concentration ratio. Secondly, unless the largest of the "large" producers supplies a greater part of the market than that supplied by all the "small" producers combined, he will be obliged to consider the reactions of the small producers when deciding on price and output policy just as he would under conditions of competition. In other words, the assumption that the large producer can safely ignore the smaller is not necessarily justified.

From these considerations, one further possibility arises. If, as has been suggested, the monopolist or oligopolist in a highly concentrated industry does not in the event possess the economic power that he may have been assumed to possess, it follows that he may not always find it in his best interests to pursue a policy of restricting output and raising prices. In these circumstances, it cannot be assumed that a high concentration ratio will invariably result in the inefficient use of resources and less than the maximum possible economic welfare. The fact that this possibility conflicts with much of the commonly-held belief based on laissez-faire theory suggests that a re-examination of both the facts and the assumptions in traditional thinking may be overdue.

Economic conditions peculiar to Canada must, of course, influence any assessment of the economic and social significance of trends towards concentration. In this connection, the experience of others can prove valuable for purposes of

comparison. When, therefore, the Royal Commission requested that the study be prepared, it was suggested that such a study should discuss the trend in the past towards concentration in industry in the United States, the United Kingdom, and Canada, and that it should include some assessment of the probabilities that the trend may be continued. It also suggested that mergers, apparently one of the most common means of increasing concentration, should form a special part of the study. As the work progressed, it was found that some difficulties arose out of the varying definitions of the subject matter itself. The attempt that was made in the submission to reduce the considerable body of discussion on definition to manageable proportions should prove most useful, if only because it brings attention to the difficulty of determining what measuring sticks could be used to indicate relative concentration. This, it is suggested, has considerable significance for policy decisions.

An industry may be "concentrated" in geographic terms, relating to problems concerned with the regional location of industry. This interpretation was not adopted as the primary basis of the study. It may be concentrated in the sense that industrial activity is carried out in relatively few plants, or that the economic activity is carried out by a relatively small number of legal owners or firms, or that there are a relatively small number of economic decision-makers or concerns. The terms of reference suggested that, of these, consideration be given to firm and ownership concentration; geographic agglomeration and plant concentration (which arises from a movement towards finding the optimum size of plant in any industry) are considered only as they affect firm concentration.

Measurement of concentration within an industry presents a number of difficulties if the results are to be sufficiently precise for analytical use. Some kind of an index of industrial concentration may be achieved by relating, for example, the output produced by the three largest firms in the industry to the total output of the industry, or some other variable, such as employment, may be used instead of output. may be used instead of output. Alternatively, if it is assumed that the degree of concentration is identical with the degree of monopoly, an analytically precise method of measuring monopoly will provide a precise measurement of concentration. These measurements, however, while they may be of significance to the economist or statistician, may be misleading when they are used in the formation of public policy. For example, the question of what an industry actually is can be of prime importance: many products face close price competition from like products of different "industries". In the same way, technological change may render invalid the traditional measures of size such as value of output or number of employees. The installation of new machinery, for example, could conceivably result in more efficient production and a reduction both in price and in number of employees. As a result, a fall in nominal value of output or number of employees, or both, could occur, so that the firm would appear to have become less dominant, while in fact it may be supplying a larger part of the market owing to the lower price at which it is now selling its output.

These considerations show that value of output and number of employees, the only units readily available and easily applicable in comparisons from industry to industry, cannot be assumed to provide an infallible guide to the degree of concentration. Nor, as has been remarked earlier, can it be assumed that concentration remarked earlier, can it be assumed that concentration reduces competition or increases monopoly. It is the assumption that it is *always* so that makes this position one of political dogma rather than economic science. Moreover, a statistical series which,

even apart from these considerations regarding the reliability of units of measurement, shows an apparently competitive industry, may also be misleading. Regionally divided markets in a nation such as Canada may be such that ten widely separated firms, apparently in competition, may each be behaving monopolistically in its local market, protected perhaps by transport costs.

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Turning from the problems of definition to the problem of the relevance of the concept of concentration to Canadian conditions, the question that arises is this: is concentration contrary to the material welfare of the people? There are two schools of economic thought on the question. One school, the "anti-trust" group, holds that firm concentration arises from conspiracy and the desire of producers for monopoly profit and power, and as such must be to the detriment of the public. This school denies that concentration leads to economies of scale, or that it results from market instabilities created by technical innovation. The other school, while not denying that concentration may arise from conspiracy and may be exploitative, maintains that other causes of concentration also exist. Technological change, by making economies of scale possible, can result in plant concentration, which may or may not lead to firm concentration due to the instability of competition thus introduced. This may or may not lead to the possible evils of monopoly. What is needed is a much more searching analysis at three levels: namely: the causes of plant concentration and of firm concentration, the circumstances under which firm concentration reduces competition, and whether or not all diminutions of competition are detrimental to the public interest.

The study suggests that evidence does not support the dogmatic conclusions put upon it by some members of the "anti-trust" school. This school claims that the trend towards continually-increasing size of plant has greatly diminished in significance, so that economies of scale cannot be assumed to be a decisive influence on size. Studies, however, show that although the trend, averaged over the economy as a whole, is diminishing, the unit of measure can be misleading, as already pointed out. Moreover, optimum size differs greatly in different industries. Averages for industry as a whole conceal continued expansion in one industry which is offset by contraction in another, and economies of scale in one industry which are offset by diseconomies of scale in another. Empirical data therefore do not support the anti-trust school in the manner that they superficially appear to do, and it is therefore doubtful whether a generalization over the economy as a whole about the relation of economic efficiency to size of formation is meaningful or scientifically useful.

Assuming, however, that increased concentration has been established in some particular industry by some one of the usual direct measures of concentration — for example, by merger — the question arises whether competition has in fact been diminished. The kind of competition usually regarded as being in the public interest is the "perfect competition" of the classical economists, but this type of competition seldom, if ever, exists in today's markets. The kind of competition which does exist is "imperfect competition". Once in the area of imperfect competition, one cannot logically take an inflexible stand upon the effect of an increase of concentration on the day-to-day "workable competition" on which the industry in fact operates. The most that can be said is possibly that some diminution of competition accompanies an increase of concentration. Again, it is often assumed that a diminution in

competition is always detrimental to the public interest, but some kinds of competition, as imposed by local conditions, are of questionable value. Limited size of the market, as in Canada, may impose a limitation on the number of firms of the optimum economic size. Firms under oligopoly conditions such as these may turn to competitive advertising, so that by differentiating the product each may establish himself in a monopoly position toward the demand for his brand. Legally, the oligopolist may be forced into this sort of situation. It is conceivable that one producer may be more efficient than the others, so that by rigorous price competition he can eliminate his competitors, thus finding himself the sole producer and therefore a monopolist. The only alternative is that the producers "get together" in some form of illegal or tacit combine to avoid such a ruinous process.

The argument to this point represents an attempt to show that accepted Canadian attitudes on concentration require re-thinking. It has been suggested that the usual measures of concentration may be dangerous and misleading as a basis for policy, that concentration thus measured need not necessarily result in a diminution of competition, and that a diminution of competition may not necessarily be detrimental to the public interest.

A study of industrial concentration on a comparative basis, so far as it can be measured and with the reservations implied by the limitations of the units of measurement, provides much information for further thinking on these issues. The trends revealed by such a study throw some further light on the causes of concentration, so that it may more readily be seen whether developments arise from the operation of economic forces or from the actions of entrepreneurs.

Probably, in the case of the United States, the greatest difficulty in attempting to trace trends in concentration has been the rapidly changing character and structure of the economy, but it is generally agreed that there was an increasing rate of concentration in the early stages of industrial development, followed by a flattening during the early part of this century. Between 1899 and 1937 there was probably *on the average* no appreciable increase in concentration within industries. Between 1935 and 1947, the average change was close to zero. While averages hide the diversity of patterns within industries, large changes in concentration were exceptional. The increase in the total number of firms has probably acted as an offsetting influence in the concentration equation, but of possible significance for the future is the apparently steady increase in relative profitability of large manufacturing concerns. If this trend continues, it would seem to point to a condition which may lead to further concentration as smaller, less profitable concerns are forced either out of business or into mergers. In general, however, it seems that the recent merger movement has not reached large proportions and has probably had little effect on over-all concentration.

When we turn to the situation in the United Kingdom, we find no study available dealing with the trend in concentration, nor are there any statistical data available in workable form to provide the basis for trend analysis. However, some available indications show that concentration is very high in some manufacturing industries. It may be noted, however, that the degree of monopoly control held by a manufacturer over the market can be greatly modified by the availability of imports — an important consideration in a country with extensive world trading habits.

In Canada, attention has been focused on the manufacturing segment and the most exhaustive studies so far made have been concerned with plant concentration.

It has been shown that plant concentration rose sharply between 1890 and 1922, remained constant until 1940, and has fallen slightly in the post-war years. Concentration increased during the war years; the subsequent decrease has been due to the increase in the number of manufacturing plants in operation since the war, and took place despite a tendency to increased size of plant throughout industry. However, the average level of concentration is very high. Examples of industries with high concentration are the primary metals, automobiles, railway equipment, cotton textiles, cigarettes, and chemical processing. Of the industries with low concentration, saw mills, machine shops and bakeries are examples, but in some cases concentration measured on a national basis does not indicate the degree of market control, since different regions constitute substantially separate markets. Within each region concentration is likely to be higher. Industries in which the technique of production requires a high proportion of capital in relation to labour often have a higher concentration than those in which this proportion is low.

Much of the discussion concerning the desirability or otherwise of concentration turns on the theory of economies of scale. In its simplest form, this theory claims that by expanding the size of plant or operations certain costs, such as managerial costs, are spread more thinly over total output, and bulk purchasing results in lower per-unit cost of materials. Beyond the optimum size, however, diseconomies of scale, such as cumbersome organizational control or freight costs for the finished product, may well appear. Some distinction, however, must be drawn between plant economies of scale, which can be estimated fairly accurately, and economies arising from firm concentration, i.e., multi-plant operation. In some industries, efficiency may be better served by firm concentration, while in others firms concentration may not be justified. Although research into this question has not as yet been extensive, it again appears that generalizations cannot be applied in this field, but the smaller population of Canada may result in a higher degree of concentration than in comparable industries in the United States for the most efficient production.

The effect of mergers on concentration has not been (and probably cannot be) fully understood. In the United States, there is no doubt that they have contributed to concentration, but probably not in as important a way as has been generally believed. Recent studies have shown that mergers of large firms with other large firms, prominent during earlier periods, have not been characteristic of recent years; virtually all the firms disappearing through merger or acquisition have been small. As a means of growth for the large companies, merger has been dwarfed by internal expansion, and the firms lost by merger have been replaced many times over by new firms entering industry. Where two of the smaller firms in an industry merge, the result may be to reduce concentration. However, the number of variables in any measurement of concentration is large enough to make it difficult to isolate the degree of change in concentration brought about by merger.

Of the motives for merger, before 1900 the object was usually to obtain control of the markets for particular commodities, while in the 'twenties promotional profits were the objective. There is no evidence that the desire for monopoly was the dominant motive for the majority of mergers, nor that monopolization was a result. While many of the high concentration ratios at the beginning of the century resulted from mergers, the mergers involved constituted only a minority of all mergers of that

period. In post-war years, anti-social motives in mergers have not been prevalent: mergers now are undertaken for sound business reasons, such as acquiring larger capacity to supply growing markets, lengthening the product line, diversification and the obtaining of facilities to supply goods previously purchased.

In review, the economic motivation for increased concentration is strong in many industries, both in the United States and Canada. The changing nature of the economy has created increased emphasis on items requiring large-scale plants for efficient production; while market alterations have been caused by technological change, shifts in consumer demand and developments in substitutes. The growing importance of research brings advantages to the large firm which can afford extensive research programs. Self-protection against the power of the large corporation has caused smaller competitors to combine in order to compete more effectively. Brand names and advertising have created consumer preference for widely-advertised brands. Difficulties of access to the securities markets and the high cost of floating small issues have restricted the activities of small firms and favoured growth of the large corporations. All these considerations may be regarded as having a bearing on public policy.

Market control in manufacturing industry is only a special aspect of the broader problem of the concentration of economic decision-making over any or all sectors of economic life. Historically, only Great Britain, Holland and North America ever really adopted the principle of economic freedom, and at that some degree of protection for certain sectors of the economy survived as a matter of social policy. In the United States, a degree of protectionist philosophy has ordinarily prevailed, and in Canada the political idea of building an independent nation has justified the toleration of protection, governmental assistance to industry and some forms of monopoly. The concept of the national interest implicit in the classical theory is too narrow and too limited to represent social ideals and objectives, although price competition does constitute some protection for the public against exploitative activities. What is now needed is a set of objective and acceptable economic criteria for appraising the effect of any market structure, accurately defined, on the public interest.

Trends in economic concentration in the United Kingdom around the turn of the century were characterized by a burst of monopolization in manufacturing industry, and during the first world war economic mobilization was accompanied by a strengthening of control of industry through trade associations. After the war, and during the 'thirties, the government actively promoted economic concentration, and during the second world war further concentration through private trade associations was again evident. State operation of certain industries in Great Britain followed the war, and it is significant that the majority of public and business opinion now accepts such a situation as economically desirable. In the United States, after the spectacular period of the growth of trusts and the "trust-busting" era in the early years of the century, concentration of economic power was fostered largely by trade associations, and during the last quarter-century this has been accompanied (as in Britain) by government encouragement of market control by producers.

In Canada, there were early complaints that the tariff was a breeder of monopoly, and that at least the possibility of this existed was proved by the passing of an Act

for the suppression of combines in 1889. The years before the first world war saw a movement towards concentration of economic power through the vertical integration of industry, and the formation of price agreements and marketing pools. After the first world war the most numerous consolidations occurred in a wide variety of small industries, while the two wars together served to strengthen trade associations as they did in the United Kingdom and United States. Nor was Canada immune to the government-sponsored trend to economic concentration during the depression of the 'thirties.

In interpreting these trends, some economic theorists have been predisposed to stress economies of scale as a cause; others consider the simple principle of profit maximization as an adequate explanation. Students of the institutional side of economic life find a variety of explanations, such as may be found in the activities of government in attempting to overcome the disabilities of private enterprise in depression. Tariff policies also offer the possibility of monopolistic organization by protected industries. Owing to differences in economic back-ground between the United States and Great Britain, it is unprofitable to try to isolate the effects of the legal factor in the history of trade restraint, although it is probable that American anti-trust legislation has been effective in dampening-down the trend towards concentration of economic power. In Canada, where the legal position is somewhere between the two, it is probable that geographic and economic conditions generally have very greatly outweighed any influence that legislation has had in the development of the trend.

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For the future, it may be useful to speculate on some of the factors which may influence the trends previously analysed. Plant concentration could be diminished by the development of truck transportation, and the extension of centrally-supplied electric power. Automation, on the other hand, which calls for increased capitalization and emphasizes economies of scale, could increase concentration, although it may also only affect industries where concentration is already high. These considerations, however, do not apply directly to firm concentration, where trends will be influenced by other factors. Expansion in numbers of small plants may mean either that they are independent companies or branch plants of multi-plant firms, and increased administrative skill may favour growth in firm size. Opportunity for the small firm may depend in part on the possibilities of access to the capital market; improved facilities for the financing of small firms would make for greater competition.

Any attempt to estimate the probable future trends in industrial concentration in Canada is defeated by the inadequacy of statistical data on past trends, so that extrapolation is not permissible. The inescapable conclusion is that the available evidence is far too sketchy to justify the firmness with which opinions on this controversial subject are maintained. However, the evidence suggests, *although it does not prove*, that no general trend towards a higher degree of concentration can be distinguished; markets have increased *pari passu* with amalgamations, and new firms have appeared. Moreover, some industries appear to show a movement away from high concentration, while others move towards higher concentration, so that generalizations regarding industry as a whole are invalid.

In the economy generally, certain cautious estimates of future trends may be made at this time. It may be that the world trend is turning against the free price

mechanism, and that governments everywhere will once again intervene in the regulation of economic behaviour. Nevertheless, certain countries, including Canada, will retain, for the next 25 years at least, the free price mechanism as a fundamental, though no doubt modified, institution of the national economy, despite strong government regulation of such sectors as utilities and agriculture. It may be expected that rapid growth in terms of population and industrial activity will tend to diminish the over-all degree of concentration, although this may not apply in specific industries. It is also probable that Canada will continue to advocate and to practise liberal commercial policies.

A study of this nature leads to the view that the problem of the concentration of economic power is as wide as the problem of political economy itself. It raises the whole problem of the relationship of the state to economic life and the relative values that society places on such things as standard of living, security, and practicable amounts of freedom. Economic theory proves that perfect competition produces the greatest material wealth; if the highest possible material standard of living is to be the sole basis of government policy, the State should press hard for the greatest possible degree of competition and should tolerate monopoly only when there are compelling reasons for doing so. On the other hand, concentration of economic control, whether under public or private auspices, can be justified — and often is — on the basis of "orderly marketing", more responsible administration of economic affairs and, in general, a dampening down of these centrifugal and powerful economic forces which, if unbridled, constitute a threat to political order.

Canadian public policy, in the future as in the past, will profoundly influence the development of Canadian industry and the trend towards greater of lesser degrees of concentration. In the past, policy has been ambiguous. Tariffs, provincial marketing pools, and war-time quota agreements fostered by governments have all tended to increase concentration, while on the other hand legislation makes monopolistic practices, combines, and mergers punishable offences. In practice, it seems protectionist actions in certain industries are regarded as being in the public interest, while in others they are are not. It has, however, been suggested that Parliament's intention under the Combines Act to punish only those combines which operate to the detriment of the public has been nullified by the jurisprudence which has grown up in connection with its administration.

The degree of concentration which may appear in industry will also, in practice, be significant largely in relation only to trade policies. Liberal policies towards international trade could introduce a degree of competition which could make the question of concentration on a national basis irrelevant. More particularly, in examining concentration, have we reason to assume that an increase in concentration means a diminution of competition and that competition is always favourable to, and a diminution of concentration always detrimental to, the public interest? When competition takes the form of competitive advertising, does it really protect the public and achieve an optimum use of the social resources?

When the Restrictive Trade Practices Commission was established its duties were stated to be to appraise the effects on the public interest of combines and mergers brought before it by the Director of Investigations. If this Commission has

so far developed no economic technique for the appraisal of the public interest, but has become largely a court of first reference in which the old jurisprudence (i.e., that if a combine or merger can be shown the legal presumption is that it is automatically contrary to the public interest) obtains, then it is desirable that some estimate should now be made of the effect of such juridical rules on Canadian economic development.

This study has tried to suggest that an anti-trust policy is desirable for the protection of the public interest, but that an anti-trust policy by itself is not sufficient as a remedy for monopolistic practices. It is suggested also that the administration of policy should be flexible, and that the Restrictive Trade Practices Commission should not rely on simple juridical rules but, rather, should accept the responsibility of defining proper criteria for the appraisal of the public interest.

REVUE DES LIVRES

Outline of Monetary Economics By A.C.L. Day. Clarendon Press Oxford.

"Within the confines of Macro-Economics", says the author, "a useful, consistent and systematic body of analysis has been erected since the mid thirties, this book attempts to set it out". It provides a survey of theory and financial institutions both British and International. After dealing with the groundwork of the theories of income determination and of interest rates, the author describes financial institution, inflation and the problems of economic instability. The theory of international monetary economies is considered in some detail, and then the theories are related to an outline of twentieh century international financial history.

The new Revolution in the Cotton Economy. By **James H. Street.** Published by The University of North Carolina Press.

The author's interest in the subject of this book was first aroused during the depression years while he was still a student at the University of Texas.

"Where there were only experimental models a few years ago, there are now over 18,000 mechanical cotton harvesters and 23,000 mechanical cotton strippers in use."

Rapid and widespread changes are taking place in the American Cotton Economy, and the author attempts to find answers to two questions in this connection. First why has a rapid acceleration recently begun in the improvement of American methods of cotton production? Second why did it take so long?

The author traces the history of cotton growing, the appert of two world wars and the competition by synthetic products.

Of all the dangers threatening cotton the last mentioned competition of man-made fibres is the most serious. But competition also raises a host of problems:

1. — The consumer gains whatever happens. The real victim in the event of cotton succumbing to the challenge of synthetics is the cotton producer.

2. — The decline in the export of cotton led the American Govt. to take measures designed to bolster the market. These include support prices. But support prices raise the internal price of cotton against the home spinner to an extent which gives an impetus to synthetic producers: a step likely to drive cotton prices further down.

3. — Cotton mills are adapting themselves to the use of synthetic so that one and the same mill would be spinning both cotton and rayon or cotton and some other form of artificial fibre.

This adaptability is of great importance and is bound to have repercussions which it is worth our while to heed. For, consider the alternative:

Suppose no adaptability was possible. Suppose once a cotton mill always a cotton mill. Suppose that synthetic fibre mills were entities in their own right and that man-made fibre mills had to stay man-made fibre mills and could not be turned to cotton. In that case, cotton firms on the one hand would have been reluctant to start new or expand already existing cotton mills for fear synthetic competition might render them obsolete while on the other hand synthetic manufacturers would also have been reluctant to start brand new synthetic mills.

Rigidity would have acted as a deterrent holding people back from indulging in what a more flexible arrangement would have made feasible to that adaptability of spindles to both cotton and rayon makes possible a greater flow of investment into spinning. It also reduces depreciation items chargeable to capital already invested.

Under a flexible system improvements or lowered costs in the manufacture of either variety can more readily and with less waste to the industry as a whole be applied and put into apparl than under a rigid system where either variety operated independently under conditions of water tight compartments.

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The Theory of Wage Determination edited **By John T. Dunlop.** Macmillan & Co. Ltd.

Professor Dunlop begins by analysing the task of contemporary wage theory. Thereafter follow a group of papers concerned with the theory and practice of the general level of wages in the light of both the work of Keynes and of more recent theories of growth.

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Science and Economic Development **By Richard L. Meier.** Published by Wiley and The Technology Press of the Massachussetts Institute of Technology.

Richard L. Meier was one of the industrial scientists who joined the chemists and physicists in the University of California to establish one of the atomic scientists' associations.

The book traces out a path for economic development which is suggested by postwar discoveries in science and technology. In many of its features the advice offered is diametrically opposed to the most commonly held views.

Present and projected word resources are presented in a concentrated form which researches will find very useful. But what is especially provocative about the book is the attempted integration of the most feasible proposals for development into a pattern of living.

We are familiar with the concept of the controlling power of demand. So far the challenge to this power has come from authoritarian governments. But a challenge of that nature is incompatible with the sovereignty of the consumer. If consumer's demand result in waste, waste there shall be and nothing can be done about it except through counsel and persuasion. What this book seems to aim at among the objectives is to channel human desires into a pattern of living which

while it ensures comfort in the physiological sense free from the hollow ambitions associated with display and prestige. The following specimen quotations will illustrate my meaning.

"When considering the organisation of shelter, the Western man must thoroughly divest himself from a middle class set of "ought to haves". Why, for instance, should roughly 20 square feet be allocated solely for one person's bed? If the bed were not so ponderous the space could be used for other purposes at least fifteen hours a day... Equally vexatious are chairs, divans and tables. At the present time less than half the world sits on chairs as a matter of habit. Nothing in the physiology of man demands this equipment in order to achieve conveniently a comfortable relaxed state... The present trend in poorer areas is to discard elements of culture incompatible with popular Western standards... Among the most wasteful idea invading the world today are the American concepts of the ideal kitchen and bathroom and so on and so forth.

Judging by the frequency of imitations of fashion, the success of the author's recommendations would seem to need a larger share of schooling than either teachers are prepared to give or scholars within to receive.

Economic Development **By Gerald M. Meier and Robert E. Baldwin.** Published by John Wiley & Sons Inc. New York.

Gerald Meier is Associate Professor of Economics at Wesleyan University while Robert Baldwin is Assistant Professor of Economics at Harvard.

Viewing economic development as the main theme of Economic thought and history, this book examines the problems of accelerating development, in poor countries and maintaining development in rich ones. Development problems have come to be an issue of such urgency and importance that economists are remoulding theory in terms of development which, incidentally, is a term lending itself to a variety of interpretations. The literature on the subject has proceeded in various directions with the result that the general impression is that contributions to this branch of knowledge consist mainly of an assortment of ideas and observations somewhat lacking in unity. The authors' aim has been to combine and expand the more important of these contributions into a systematic discussion conveying some notion of the development process. Theoretical foundations are made the the basis for the interpretation of development as a process.

Both economic and non-economic aspects of the development process are examined, and an historical analysis is offered providing an insight into the causes of "The Poverty of Nations".

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RELEVÉ DES PRINCIPAUX ARTICLES PARUS DANS LES REVUES ÉGYPTIENNES ET ÉTRANGÈRES

Premire Trimestre 1958

REVUES EGYPTIENNES

مجلة غرفة الاسكندرية التجـــارية

العدد ٢٥٥ ـ السنة الحادية والعشرون ـ الاسكندرية ـ ديسمبر ١٩٥٧

كلمة الشـــهر : نتائج المؤتمر السابع لغرف العربيـــة
ـ الدورة السابعة لمؤتمر غرف التجـــارة والصناعة والزراعة العربية ـ ـ حفلة الافتتاح والقرارات والتوصيات
ـ قرارات المؤتمر وتوصياته
ـ غرفة الاسكندرية تحتفي بوفود مؤتمر الغرف كأفراد أسرة نبيلة عريقـــة في الامة العربيـــة
ـ أبحاث : مقدمة من وفد الغرف المصرية الى مؤتمر غرف التجارة والصـــناعة والزراعة العربيـــة
ـ السوق الاوربية المشتركة ومدى خطورتها والوسائل اللازمة لمواجهة الموقف
ـ الاتجاه الى التعاون الاقتصادي مع مجموعة الدول الاسيوية والافريقية ومجمـــوعة دول البحر المتوسط
ـ تنسيق الانتاج في الميدان الصناعي
ـ تنسيق الانتاج الزراعي في البلاد العربية
ـ تبادل المنتجات الزراعية بين الدول العربية
ـ تنسيق النقل البحري
ـ التعارف التجاري في الدول العربية
ـ مقاطعـــة اسرائيـــل
ـ السعي والجد والدأب هي وســـائل النجـــاح للاســـتاذ ا. ج
ـ انتخابات الغـــرف التجارية يوم ١٤ ديسمبر سنة ١٩٥٧ ـ اخلاء الترشيحات لانتخابات غرفة الاسكندرية
ـ انباء وقرارات مختلفة
ـ الاســـواق التجارية والمالية في شـــهر نوفمبر ســـنة ١٩٥٧
ـ القطن المصري ـ القطـــن الامريكي ـ البذرة ـ الحبوب ـ الاوراق المالية ؛
ـ متوسط اسعار السلع الهامة في شـــهر نوفمبر ســـنة ١٩٥٧
ـ التعـــارف التجـــاري

BULLETIN DE LA CHAMBRE DE COMMERCE D'ALEXANDRIE

21ème année — No. 255 — Alexandrie 1957

Propos mensuels. — Résultats du Septième Congrès des Chambres Arabes.
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22ème année — No. 256 — Alexandrie — Janvier 1958

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العدد ٨ ـ السنة ٣٣ ـ القاهرة ـ ديسمبر ١٩٥٧

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شئون الضرائب : من قضاء محكمة النقض : اتفاق الممول مع مصلحة الضرائب على تعديل نسب التقدير النهائية ليس مخالفا للنظام العام اذا أيدته قرينة المساواة فى التكاليف والاعباء المالية
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H. Burton. — Expenditure Taxes, Imports and Gross Domestic Product Prices.

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