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Baghdad, Iraq.

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## Scientific Research in Iraq

In developing and undeveloped countries, scientific research is usually looked at as a pleasurable pass-time and a luxury indulged in by well-to-do and industrially advanced nations. Although this view is held by most politicians of the old school, the recent events in the Middle-East have had such tremendous impact on the minds of the new-school politicians that they have started asking what can science and technology do for us ?

Science and science-based technology can only be of real help if coupled with scientific research. A glance at the modern history of the industrial nations is sufficient to show the decisive role played by scientific research in building and consolidating their present position as the leaders of the world. The developing and undeveloped nations must not look to science and technology as their means for competing for such positions, but rather for their urgent needs to create, maintain and develop a respectful, civilized and healthy life. In Iraq, such views are being currently and actively argued. But, of-course, the only way to arrive at and to implement workable plans in order to initiate, develop and foster science and science-based technology is by the application of well debated scientific planning and programming. A requirement which is lacking in Iraq.

By themselves, social and political revolutions can act both as deterrent and stimulant for such planning. The absence or presence of enlightened and scientifically minded leadership and mature political institution can decide which way social and political revolution shall affect the future of the country. But, what the country suffers from, at the present, is social and political instability. However one has to admit, in all fairness, that the responsible politicians in government hold very high views of science and the scientists, and it is here that real hope lies. Coupled with this is the question whether the country can pay for science and scientific research. In spite of the recent economic difficulties, the structure of the economy of the country is healthy enough to recover from these lapses. Thus, a sizable, though limited, programme of scientific research and development can easily be paid for.

It is now the scientific leadership more than anything else that has to be questioned. Does Iraq have the necessary scientists with the necessary scientific experience in the

right positions to lead a scientific revolution ?

### The Universities in Iraq and Scientific Research

It is natural in considering the answer to such a question to turn to the universities in the country and to see how far they have fulfilled their role in creating the necessary conditions and environment conducive for scientific research.

Scientific research had classically arisen within the warm womb of the universities and in the embrace of the scholars. For the university has always been the natural environ for the growth of science and of scientific research. In Iraq the situation in the universities is rather different. They are centres of teaching rather than the centres of learning which they should be. Research and teaching, it is still widely believed to be in conflict with one another. In the case of the University of Baghdad, the history of its formation may explain the situation. The University as such has been in legal existence since 1958. Prior to that date, there were several teaching and professional colleges where hardly any research was done. The exception to that were the College of Arts and Science, founded in 1949; and to a lesser extent the College of Medicine and the College of Engineering. One can therefore safely say that both staff and graduates of these colleges, and of the University later, had no opportunity in seeing science as a growing and living human effort, but rather as a historical experience that may be used in mastering a profession and rendering a service required by the community for its daily life.

No such rational historical case can however be made for the two younger universities at Mosul and Basra. From their very conception they could not be considered anything but teaching centres. The shortage of qualified teaching staff in the sciences and in medicine was so severe, that in the case of the University of Mosul, lecturers had to be flown from Baghdad once a week to give the required lessons.

Few years ago the University of Baghdad has awoke awkwardly to the need of scientific research as a necessary complement to its teaching function. To that end, it has established the office of Assistant to the President for Scientific Research. This office in its more than three years of existence has done very little to amend what is in fact a very serious situation. Its paper-work efforts and

that of the Academic Board of the University have resulted in a very weird award system for scientific research carried out by the academic staff ( an award not exceeding ID 180 per project is given under somewhat ludicrous conditions). The simple requirements for scientific research have been hardly touched. They are the availability of qualified scientists with enough free time and funds and equipment. And in the following paragraphs we shall consider these points in some detail.

The teaching staff of the University of Baghdad is made up of two categories: the Iraqis and the non-Iraqis. The formers hold permanent appointments in the University while the latters are contract holders. Because of the conditions laid in these contracts, the foreign members of staff cannot contribute considerably to the scientific life and research activities of their departments, the main reason being the rather uncertain period they anticipate to stay in the University. They may be best described as visiting staff. In 1965-66 they numbered 251 persons compared with 604 Iraqis. For the same year the distribution of the University staff according to degrees was as follows :

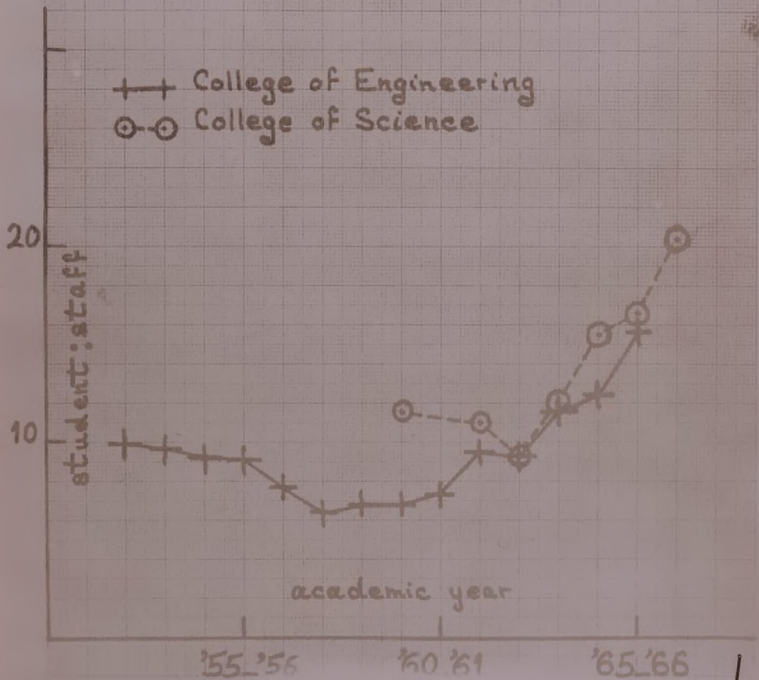
Ph.D.	518
M.Sc. or M.A.	358
B.Sc.	417
B.A.	110
Diploma	100

The growth of the University staff over the last few years is given in the following table :

<u>year</u>	<u>number of teaching staff</u>
1961-62	510
1962-63	547
1963-64	510
1964-65	774
1965-66	855

The rate of growth of the student body greatly surpasses the rate of growth of the teaching staff. Thus the student-to-staff ratio has grown from 24.5:1 in 1962-63 to 28.1:1 in 1965-66. The situation in the Baghdad colleges of Engineering and of Science is not so bad at the present as can be seen from Figure 1. However, even in these colleges, and in the College of Medicine, where prior to 1962 a healthy student-to-staff ration existed, the situation for

the last few years is getting out of hand and the ratio is rapidly growing to over 20:1. A situation that can hardly leave anyone in doubt as to the time availability for research.



While the three main universities are state owned yet their statutes allow them great freedom of action in academic and financial matters. They are not tied up with the Ministry of Finance, but their accounts are subject to inspection by the independent office of the Inspector General of Audit. The Government has allotted progressively increased funds for the University as can be seen from the following list:

<u>fiscal year</u>	<u>amount in million ID</u>
1959-60	1.5
1965-66	6.750
1966-67	5.850
1967-68	7.1

thus while the student body has grown from 11 thousand in 1959-60 to 24 thousand in 1965-66 an increase of over twofold, the University budget has multiplied by a factor greater than 4. A very healthy state of affair if one considers that the gross national income for the same period did not grow by such a rate. No one can dispute that the Government has been very generous with the universities. While these funds are made available to the universities, the money given by the latter for equipping scientific research laboratories and for financing scientific projects remains so insignificant that no officially published figures are available.

The status of the University academic staff is that of a government civil-servant as far as their basic salaries are concerned. However they get 10% university service allowance. And, because of the severe shortage of staff, they get extra-load pay which can be as much as 40% of their basic salaries<sup>\*</sup>. The following figures represent the salary scale for university academic staff<sup>\* \*</sup>

<u>title</u>	<u>starting basic pay per annum ID<sup>+</sup></u>
Lecturer (a recent Ph.D.)	600
Assistant Professor (promotion to this title is after 4 years of holding the title of lecturer)	840

\* Member of the academic staff used to get before July 1967 extra pay for extra-load or committee work amounting to 65% of their basic salary.

\* \* This scale applies to Iraqis only. There is a much higher scale for foreign staff.

<u>title</u>	<u>starting basic pay per annum ID<sup>+</sup></u>
Professor (promotion to this title is after 5 years of holding the title of Asst. Prof.)	1200

Hardly any comment is needed at this point to justify the indulgence of the academic staff to seek extra income from extra teaching load whether in the university itself or from evening classes, and even in some cases by serving as private tutors for well-to-do students. The University Statute stipulates that promotion to higher academic titles depends on the amount and quality of research conducted by the individual in the following manner :

1. promotion to the title of assistant professor, requires the person to have remained as lecturer for not less than 4 years and has published at least 3 papers of valuable research.
2. promotion to the title of professor requires the person to have spent 5 years as asst. prof. and has published at least 3 original research papers.

The requirement of 3 papers of valuable research have been interpreted liberally and in many cases even popular magazine articles have been admitted for supporting promotion to the title of assistant professor. The more serious requirement for promotion to the title of professor is only now being applied rigorously. Many of the old professors of the University have obtained their titles either by "Royal" decree prior to 1958 or by writing popular science articles, or publishing "valuable" research papers in unrefereed college journals. Recently the office of the Assistant to the President for Scientific Research of the University of Baghdad has published a list of scientific publications of the scientific members of the academic staff of the University. The list contains over 1000 titles, their analysis is shown in the following table :

Subject	Original papers (in referreed journals)	Valuable papers (unreferreed)
Agriculture	23	28
Botany	25	4

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+ The max. basic salary for all grades is ID 1800 after about 19 years of service.



Subject	Original papers (in refereed journals)	Valuable papers (unreferreed)
Chemistry	59 <sup>*</sup>	37
Engineering	113	130
Geology	1	11
Mathematics	23	12
Basic Medical Sciences	} 28	61
Medicine		
Physics	31	81
Surgeries	84 <sup>* *</sup>	11
Veterinary Medicine	} 32	56
Zoology		
	63	19
	37	47
<hr/>		
Total	519	495
%age	51	49

Further close analysis of this list reveals the disturbing fact that a very large proportion of the original research papers represents research done in foreign laboratories; either the fruits of the member Ph.D. research work abroad or the result of work carried out outside the University during the member study leave abroad.

In 1960-61, the University of Baghdad started its Master programme. However the problems that have faced the progress of such a praise-worthy step are mainly due to the situation explained in the previous paragraphs. In the sciences, many departments find themselves unable to maintain a continual running of the programme either through the shortage of equipment, limitation of space, or unavailability of the necessary supervisor. The courses leading to the award of the degree of M.Sc. by examination and by thesis reporting original work done by the student, are supposed to extend over two years. The following table gives an analysis of the students admitted to the programme in the various sciences and those who have been awarded the degree up to 1964-65

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\* Two papers are those of non-permanent foreign members of staff.

\* \* 71 papers are those of non-permanent foreign members of staff.

	<u>Agriculture</u>	<u>Chemistry</u>	<u>Engineering</u>	<u>Geology</u>	<u>Mathematics</u>	<u>Physics</u>	<u>Zoology</u>
1960-61	2	-	2	-	-	-	-
61-62	-	8	-	-	-	-	-
62-63	-	8	3	-	2	-	-
63-64	-	-	-	-	-	-	-
64-65	-	7	-	-	3	-	2
65-66	-	5	-	2	5	8	-
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Total admitted	2	28	5	2	10	8	2

Total no. of awards up to 1964-65

2	8	-	-	2	-	-
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### The Council of Scientific Research

The Supreme Council of Scientific Research was established by law in 1963. However, both its law and name has been changed in 1966, and it is now called the Council of Scientific Research. The proclaimed aim of the Council is stated in its statute; article II of the law no. 116, 1963 reads:

"The Council shall act for the advancement of pure and applied scientific research and in particular that which is connected with industry, agriculture, public health, petroleum and other fundamentals of the national economy within the general plan of the State."

How does the Council plan to achieve this admirable aim? Again, we refer to its law and in the explanatory note supporting the drafting of the Council Law we find the following statement: "The Council therefore undertakes the establishment of laboratories, institutes and centres that specialise in research according to the plans the Council makes as well as supervising the existing institutes and reorganizing their work. ... the Council's research is focused on the applied aspects due to the connection of this research with the practical needs of the Country."

How far has the Council succeeded in carrying out these undertakings? Dr. R.G.R. Bacon who is Reader in Organic Chemistry in Queen's University, Belfast, has made the following remark about the Council in his article<sup>\*</sup> describing his 1965 scientific visit to Middle-Eastern & Asian Countries "... but this project (meaning the Council) had not got beyond the stage of having an office and an administrator."

Although it has so far published no programme for its future work and plans, in its first Annual Report for 1966, the Council gave an outline of its past activities. However among its widely advertised projects is the building of a National Research Centre which is being financed by the Gulbenkian Foundation, but it is still in the planning stage.

Attached to the Council, there are three institutes: the Biological Research Centre, the Arid Zone Research Institute (established in 1959 with the help of Unesco) and the Petroleum Research Institute (established with the aid of the United Nations Special Funds and of Unesco).

So far these institutes have published no annual reports but occasional announcements appear in the local press of work and plans of work to be done by these centres

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\* Chemistry in Britain Oct. 1966.

which cannot be easily checked. However, one serious problem faced by these institutes is the severe shortage of qualified and experienced scientific staff.

The case of the Institute of Petroleum is very interesting. This institute has been officially in existence for over two years, but in this short time it has changed its director twice. Unesco has sent a number of "experts", more than three in fact, in order to find out what has gone wrong with such a promising project and to try and activate it. Its scientific body counts three recent Ph.D.'s (two chemists and one chemical engineer) all of them have previously done no work connected with petroleum.

As regard the Council proclaimed aim of coordinating and financing research projects in the Universities and in other centres, not much has been done. However, the College of Science has benefitted from the Council by the latter supplying of a Nuclear Magnetic Resonance Spectrometer for chemical research. A very useful instrument but alas it has been lying idle since early 1966 waiting for someone with ideas and enough spare time to use it.

### The Future

The dim picture painted above may lead to despair. But, there are hopes that the younger generation of scientists and technologists may still find ways and means to correct what is in all honesty a mismanaged and misdirected efforts on the part of the older generation. The reasons behind these hopes are :

1. The country has solid, though historical, scientific tradition. The contribution of Arabic and Islamic civilization to science and technology is so great that it only needs a concerted educational campaign to bring it vividly to the minds of the growing generations. This is definitely a great bonus that puts Iraq and other Middle-Eastern Countries at an advantage.
2. The economy of the country inspite of recent difficulty is prosperous and although scientific research is expensive and non-economical but it can be paid for.
3. The Country is rich in natural resources, and well organized and staffed and correctly oriented research centres can easily justify their existence in working out the solutions to the technological problems associated with the utilization of these local resources.
4. The political atmosphere and the public opinion is getting

keenly interested in science and technology. A well organized educational campaign on the part of the scientists and technologists is bound to bring in great support to any well thought out scientific project.

The question now is what is to be done in order to realize, foster and develop scientific research on such effectove a scale that it will have necessary impetus and effect on the national economy and on the education and life of the people. I do not think there can be a single simple answer to that question. One can only safely say that what has been done by the responsible bodies of the universities and of the Council of Scientific Research is a strong indication of the mounting pressure of the need of the Country for scientific research. Such a need can now be felt in all quarters of the educated and politically active segments of Society. What is missing, and therefore most urgently needed, is the "correct" scientific leadership. By "correct" we mean persons with bona fide scientific research experience, capable of administrative and organizational work and have the right attitude towards planning and excutive duties.

#### Sources of background materials

1. Statistical Abstract, Republic of Iraq, Ministry of Planning, Central Bureau of Statistics. Baghdad.
2. نتائج الاحصاء الثاني، الجمهورية العراقية، وزارة التخطيط، دائرة الاعطاء المركزية  
بغداد .
3. نشرة احصائية سنوية للعام الدراسي ٦٥ - ١٩٦٦ . الجمهورية العراقية ، جامعة بغداد  
عديرة التسجيل العامة . بغداد .
4. التقرير السنوي، البنك المركزي العراقي، بغداد .
5. دليل كلية العلوم، جامعة بغداد، ٦٦ - ١٩٦٧ .
6. دليل جامعة بغداد، ٥٩ - ١٩٦٠ والسنوات اللاحقة .
7. Researches in Pure and Applied Science. Published by Members of Teaching Staff of the University of Baghdad, Baghdad, 1966.
8. التقرير السنوي لمجلس البحث العلمي . بغداد، ١٩٦٦ .
9. دراسات في التخطيط الجامعي . جامعة بغداد، ١٩٦٥ .

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