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The Iranian Medical Graduate in America: 1965
A Survey of Selected Characteristics*

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Introduction

The scholar from medieval times has traveled to study in countries where eminent professors and outstanding opportunities for advanced training existed. In more recent times it has also become increasingly popular among physicians to seek advanced training abroad. Many graduates of Iranian medical schools have chosen the United States for advanced training, and the present study describes some characteristics of graduates of Iranian medical schools residing in the U. S. in December of 1965. Iranian nationals who attended and graduated from medical schools outside of Iran and are now in the U. S. are not included. A study in progress is aimed at determining their number.

Background

The present study is an outgrowth of Health Manpower Studies being cooperatively undertaken in four countries by the Division of International Health of The Johns Hopkins School of Hygiene and Public Health and the U.S. Agency for Internalional Development. In the course of these health manpower studies, a question arose as to the number of foreign medical graduates who were studying, receiving advanced training, or living abroad. With the help of a General Research Support Grant from the School of Hygiene, and support from the Iran Foundation, it became Possible to direct specific inquiry to the question of the numbers

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and professional characteristics of Iranian medical graduates residing in the U.S.

Method

Over the years the American Medical Association (A.M.A.) has built up a data collecting system which has been used to serve the needs of its members. Currently the A M.A. has information on more than 290,000 physicians in the U.S.A. These lists contain not only American medical graduates, but also all foreign medical graduates functioning as interns, residents, fellows and trainees, in hospitals, government service, or private practice within the United States. Data on each physician is punched onto I.B.M. cards and added to the roster. The roster is perpetually updated, by a full-time staff, and a resurvey of all physicians is made annually.

With the permission of Mr. Robert Enlow of the A.M.A., Department of Circulation and Records, the A.M.A. roster lists were searched for all graduates of foreign medical schools. IBM card images of data on each foreign medical graduate were obtained and transferred onto magnetic tape through use of an IBM 1401 computer. Programs were written to recode, analyze. and generate frequency distributions on a number of variables, and to print out distributions of these characteristics for all medical graduates currently in the U.S.A. Results given below summarize the major findings with respect to Iranian medical graduates living in the U.S.A. during the latter half of 1965.

Results

A total of 926 medical graduates were in residence in the U.S. in December of 1965 as indicated in Table 1. Some 95% were males and 5% were females.

Table 1. SEX OF IRANIAN MEDICAL GRADUATES IN U.S.: December, 1965

	No.	%
Male	822	95.2
Female	44	4.8
Total	**926**	**100.0**

The percentage of female Iranian medical graduates in the U.S. is less than that of European countries, as might be anticipated, and is also less than the other Middle Eastern countries.

School of Graduation

The schools from which Iranian graduates received their medical degrees are shown in Table 2.

Table 2. MEDICAL SCHOOL ATTENDED: December, 1965.

UNIVERSITY	No.	%
Faculty of Medicine, Tehran University – Teheran	746	80.5
Faculty of Medicine, Pahlavi Univ. – Shiraz	107	11.6
Faculty of Medicine, Isfahan Univ. – Isfahan	28	3.0
Faculty of Medicine, Tabriz Univ. – Tabriz	24	2.6
Faculty of Medecine, Meshed University – Meshed	21	2.3
Total	**926**	**100.0**

Graduates of Teheran University form the greatest number in the U. S.☼; however, considering the comparatively recent founding of the Medical Faculty at Shiraz (1947), the number who have sought advanced training in the U. S. is quite substantial. Arranging advanced training seems to take about 2-4 years after graduation from medical school. Graduates from the National University Medical School of Teheran will probably follow this pattern even though none can start trainig in the U.S. for a few years yet.

Year of Graduation

Years of graduation are grouped and shown in Table 3. It can be readily seen that the greatest proportion of Iranian physicians come to the U.S. within a few years after graduation.

☼ As of 1965 about 75'/. of all medical & graduates in Iran ar graduates of Tehran University.

Table 3. YEAR OF GRADUATION FROM IRANIAN MEDICAL SCHOOLS: December, 1965.

	No.	%
1960–65	472	50.9
1950–59	393	42.5
1940–49	59	6.4
1939 and before	2	.2
Total	**926**	**100.0**

Over half of the graduates come to the U.S. within 5 years after graduation. Approximately 93% of Iranian physicians currently in the U.S. have graduated since the end of World War II and it would thus be expected that on the whole they comprise a comparatively young group.

Age Distribution

The age distribution is shown in Table 4. As suggested by their graduating years, Iranian medical graduates in the U.S. are relatively young.

Table 4. AGE DISTRIBUTION OF IRANIAN GRADUATES IN THE U.S.: December, 1965.

AGE	No.	%
25–29	256	27.7
30–34	430	46.4
35–39	150	16.2
40–44	52	5.6
45–49	25	2.7
50–55	10	1.1
55+	3*	.3
Total	**926**	**100.0**

* None over 60.

Given the age distribution in Table 4, a fairly large proportion could be expected to be in advanced training.

Training Status

Analysis of the training status of the 926 Iranian medical graduates reveals 39 were interns, 507 were residents, and 35 were fellows or graduate students. The remaining 345 (36%) have completed formal training and are engaged in private practice, hospital service, or other salaried activity of a medical nature.

Thus the data shows that in 1965 slightly more than 3 out of 5 were interns, residents or graduate fellows. The remaining group will be examined in another section of this paper.

Interns and Residents

A. Geographic Location:

The geographic distribution of Iranian interns and residents is heavily concentrated in 11 metropolitan areas. The New York City metropolitan area accounts for 22% (128) of this trainee group alone. With few exceptions interns and residents are found in large cities or in their suburbs. Slightly more than 3 in 5 of all Iranians were training in the 12 largest U.S. metropolitan areas. Table 5 presents this data.

Table 5. DISTRIBUTION OF IRANIAN INTERNS AND RESIDENTS BY METROPOLITAN AREA: December, 1965.

AREA	INTERNS	RESIDENTS	TOTAL	%
New York	11	117	128	22.0
Philadelphia	1	51	52	9.0
Chicago	5	44	49	8.4
Detroit	1	31	32	5.5
Baltimore	–	29	29	5.0
Washington, D.C.	3	19	22	3.8
Cleveland	3	17	20	3.4
St. Louis	–	16	16	2.8
Houston	–	4	4	.7
Milwaukee	–	3	3	.5
Los Angeles	–	2	2	.4
Other areas	2	72	74	12.7
No data available	13	137	150	25.8
Total	**39**	**542**	**581**	**100.0**

Interestingly enough, when interns and residents were analyzed by state in which training was being received, it was found that the great bulk of Iranian medical graduates (466 or 86%) were to be found in the North-east, Mid-Atlantic, and Midwestern U.S. From an economic standpoint this is reasonable when one considers that the distance is greater, and that it costs as much to travel from New York to Los Angeles as it does from London to New York. Additionally, the older and best known training centers are found along the eastern seaboard.

B. Specialty Interests:

Interns in the U.S. are allowed to select "rotating" internships in which they spend 2-3 month periods in internal medicine, surgery. obstetrics and pediatrics, or "straight" internships in which most of their time is spent in one of the hospital services mentioned above. Of the 39 Iranian interns, 33 (85%) were in "rotating" internships, and the remaining 6 in "straight" internships.

Specialty training of the Iranian graduate resident group is quite varied. Some 25 of the 36 specialty and sub-specialties are represented. Specialty interests of the 1965 group are detailed in Table 6.

Table 6. DISTRIBUTION OF IRANIAN MEDICAL GRADUATES IN RESIDENCY TRAINING BY SPECIALTY: December, 1965.

	Iranian Graduates			All Residents Training (US) 1964 (*)		
SPECIALTY	No.	%	Rank	No.	%	Rank
General Surgery	149	27.6	1	4779	18.3	2
Obstetrics & Gynecology	75	13.9	2	2278	8.9	4
Pediatrics	61	11.3	3	1922	7.5	5
Internal Medicine	58	10.7	4	4883	19.0	1
Pathology	30	5.6	5.5	1569	6.1	6
Psychiatry	30	5.6	5.5	2853	11.1	3
Anesthesiology	20	3.7	7.5	948	3.7	9
Radiology	20	3.7	7.5	1244	4.8	7
Urology	10	1.9	9.5	586	2 3	11
Otolaryngology	10	1.9	9.5	499	1.9	12
Ophthalmology	4	.7	11.5	869	3.4	10
Phys. Med. & Rehabilitation	4	.7	11.5	118	.5	20
Dermatology	2	.4	13	302	1.2	15
Neurology	1	.2	14	415	1.6	13
Medical Subspecialties	12	2.2		332	1.3	
Surgical Subspecialties	38	7.1		1735	6.7	
Total	**539**	**100.0**		**25777**	**100.0**	

(*) Severinghaus (1965).

Iranian graduates chose specialty fields in somewhat different proprtions than did U.S. physicians in general. The proportion of residents in basic specialty training, however, (87.9%) was roughly similar to that for all residents in training in the U.S. (90.3%) using 1964 as a basal year.

Among the basic specialties proportionately more Iranians chose general surgery, obstetrics and gynecology, and pediatrics, and proportionately fewer chose internal medicine and psychiatry for specialty training as compared with U.S. or foreign graduates in the U.S. (Ferguson, 1966). The relatively greater number of residents in training in obstetrics and gynecology by Iranian medical graduates is also higher than other predominantly Moslem countries.

All surgical subspecialties were represented. But within medical subspecialties, no Iranian medical graduates were recorded as training in pulmonary diseases or in allergy in the latter half of 1965.

C. Citizenship and Visa Status:

Not all Iranian medical graduates are Iranian nationals. As is true in other parts of the world a small proportion of the graduates of Iranian medical schools are nationals of other countries.

The citizenship of Iranian medical graduates among interns and residents are given in Table 7.

Table 7. CITIZENSHIP OF IRANIAN RESIDENTS AND INTERNS: December, 1965.

COUNTRY	INTERNS	RESIDENTS	TOTAL	%
Iran	33	454	487	83.8
U.S. Nat. Citizen		3	3	.5
India		2	2	.4
Japan		1	1	.2
Thailand		1	1	.2
Data unavailable	6	81	87	14.9
Total	**39**	**542**	**581**	**100.0**

Data on the country of origin has only recently becom available, and as a result the above data gives an incomplete picture of overall citizenship status. It is likely, however, that a large proportion of the 87 physicians (15%) for whom data is unavailable are Iranian nationals.

An alternative approach to examining physicion movement is through examination of visa status. Among Iranian interns and residents the distribution of types of visas held is given in Table 8.

Table. 8. VISA STATUS OF IRANIAN INTERNS AND RESIDENTS: December, 1965.

STATUS	INTERNS	RESIDENTS	TOTAL	%
Exchange visitor	28	426	454	78.1
Permanent resident	4	22	26	4 5
None		3	3	.5
Visitor	1		1	.2
First preference		1	1	.2
Data unavailable	6	90	96	16.5
Total	**39**	**542**	**581**	**100.0**

The largest proportion of both intern and resident groups is that of the exchange visitor. Upon completion of their training, exchange students must leave the country for at least two years before becoming readmissable for entry into the U. S. Permanent residents must remain five years to qualify for citizenship. Not all permanent residents choose to become U.S. citizens, and many permanent resident visa-holders return home after having completed their training and having worked a few years in the United States.

Other Iranian Medical Graduates (Non-trainees).

A. Geographic Location:

Of 926 Iranian medical graduates in the U.S. some 345 (37%) were not in training. As was true for those in training, a large proportion have located in the more affluent Northeast, Mid-Atlantic and Midwestern states.

Table 9.

DISTRIBUTION OF IRANIAN MEDICAL GRADUATES BY METROPOLITAN AREA: December, 1965.

AREA (SMSA)	No.	%
New York	85	24.6
Chicago	28	8.1
Washington, D.C.	21	6.1
Baltimore	17	4.9
Philadelphia	14	4.1
Detroit	14	4.1
Los Angeles	7	2.0
Cleveland	5	1.4
San Francisco	3	.9
St. Louis	3	.9
Dallas	2	.6
Others	23	6.7
Unclassified	123	35.6
Total	**345**	**100.0**

Comparatively few Iranian graduates were found to have located in the South, Southwestern, West Coast or Northwestern regions. Nearly one quarter (24.6%) were in the New York city metropolitan area. Of the total group of fully trained physicians a majority (58%) were living in and around the 11 largest cities of the U.S.

Most Iranian graduates received their advanced training in the economically favored Eastern and Midwestern regions and have, not surprisingly, taken up residence in these regions after completing training. Since opportunities are many and friendships have been established it is often much easier for any medical graduate to begin practice in the region in which he has trained than it is to return home. Sending physicians abroad for advanced training without a post to return to involves considerable risk of loss in most Western countries. The effective demand, plus capacity to pay for medical service makes practice in the U.S. a tempting prospect for the impecunious resident.

B. Specialty Practice:

The major specialties practiced by those Iranian graduates not in training does not follow the pattern of U.S. or Canadian graduates in terms of frequency. Table 10 shows the primary specialties, frequencies and percentages of practicing Iranian graduates in the U.S.

Table 10.

PRIMARY SPECIALTIES OF IRANIAN GRADUATES EXCLUSIVE OF TRAINEES: December, 1965.

	IRANIAN GRADUATES			U.S. AND CANDIAN GRADUATES IN SPECIALTY PRACTICE (1964) (✡)		
Specialty	**No.**	**%**	**Rank**	**No.**	**%**	**Rank**
General Surgery	68	20.8	1	22623	13.2	2
Internal Medicine	37	11.3	2	31128	18.2	1
Obstetrics & Gynecology	36	11.0	3.5	14425	8.4	3
Pediatrics	36	11.0	3.5	12406	7.2	5
Anesthesiology	23	7.1	5	6237	3.6	8
Pathology	20	6.1	6	5778	3.4	9
Radiology	17	5.2	7	7855	4.6	6
Psychiatry	12	3.7	8	12753	7.4	4
Otolaryngology	9	2.8	9	4782	2.8	10
Urology	6	1.8	10	4377	2.6	11
Ophthalmology	4	1.2	11	7443	4.3	7
Neurology	3	.9	12	1578	.9	14
Physical Med. & Rehabilitation	2	.6	13	703	.4	15
Administrative Medicine	1	.3	14.5	3225	1.9	12
Dermatology	1	.3	14.5	3007	1.8	13
Medical subspecialties	5	1.5		3567	2.1	
Surgical subspecialties	24	7.4		10934	6.4	
Other subspecialties	3	.9		5235	3.0	
Unrecognized specialties	3	.9		1230	.7	
Unspecified	17	5.2		12178	7.1	
Total	**327**	**100.0**		**171464**	**100.0**	

(✡) Severinghaus (1965).

Supply and demand factors operating within the U.S. do not seem to account for specialty choices by Iranian graduates for either trainees (Table 6) or those not in training (Table 10). There appears to be a tendency for Iranians to prefer general surgery, obstetrics and gynecology, and pediatrics and to be proportionately less disposed toward internal medicine and psychiatric practice than is true for U.S. graduates (Table 10), other foreign medical graduates in the U.S. (Ferguson, 1966), or for Turkish medical graduates (Ferguson, 1966). Surgical subspecialties are also more popular among Iranian graduates than other groups. The matter of subspecialty choice is a complex one and the numbers involved are too small to make generalizations without further study.

Higher proportions of Iranian graduates remaining in the U.S. are in specialty practice the case for U.S. graduates. Table 11 reveals nearly 95% of the Iranian graduates are in specialty practice and 5% are in general practice, whereas for U.S. graduates the corresponding proportions are 72% and 28%

Table 11.

EXTENT OF SPECIALIZATION OF IRANIAN GRADUATES: December, 1965.

	Iranian Graduates (1964) (✡)		All U.S. & Canadian Graduates in U.S.	
	No.	**%**	**No.**	**%**
Physicians in General Practice	18	5.2	65394	27.6
Physicians in Specialty	327	94.8	171397	72.4
Total (Exclusive of Trainees)	**345**	100.0	**236791**	**100.0**

(✡) Severinghaus (1965).

C. Specialty Boards:

While the number of Iranian physicians who indicate specialty practice is 327 (Table 11) it is of interest to note that only 117 or 35. 8% of this group were members of American specialty societies, and that only 73 or 21.1% were certified specialists (Table 12).

Table 12.

DISTRIBUTION OF AMERICAN SPECIALTY BOARD CERTIFICATIONS HELD BY IRANIAN MEDICAL GRADUATES: Decemcer, 1965.

BOARD	No.	%
Pediatrics	27	7.7
Surgery	21	6.1
Pathology	6	1.6
Anesthesiology	3	.9
Otolaryngology	3	.9
Urology	3	.9
Ophthalmology	2	.6
Psychiatry & Neurology	2	.6
Internal Medicine	1	.3
Neurosurgery	1	.3
Obstetrics & Gynecology	1	.3
Orthopedic Surgery	1	.3
Phys. Med. & Rehabilitation	1	.3
Radiology	1	.3
Total	**73**	**21.1**

Board certification by an American specialty board presents a number of problems to the physician trained in another country. A license to practice medicine in the U. S., an approved internship, an approved residency and post-residency practice, and in 7 out of 19 instances U.S. citizenship, all constitude requirements for eligibility.

It is important to recognize that certification represents a qualification available only to voluntary candidates who demonstrate competence in their specialty and who meet the training requirements of the board. The fact that only 12.6% of Iranian medical graduates in specialty practice are board certified demonstrates that board certification is by no means a requirement for specialty practice.

D. Classification of Professional Activities:

1. Nature of professional Activities. Most Iranian graduates (87%) in non-trainee categories (interns, residents, etc.) were directly involved in clinical work as shown in Table 13. Only a very few were involved in work of a non-medical nature.

Table 13.

NATURE OF PROFESSIONAL MEDICAL ACTIVITIES OF IRANIAN MEDICAL GRADUATES EXCLUSIVE OF TRAINEES: December, 1965.

	No.	%
Direct care of Patients		
In Private Practice	153	44.4
Not in Private Practice	148	42.9
Medicllly related activities	29	8.4
Non-medical activities	15	4.3
Total	**345**	**100.0**

2. Type of Practice. As might be expected, most of those physicians not in general or specialty practice tend to be on hospital staffs and responsible for patient care as described in Table 14. Small numbers are on medical school faculties in general practice, and in research activities.

Table 14.

TYPE OF PRACTICE OF IRANIAN MEDICAL GRADUATES EXCLUSIVE OF TRAINEES: December, 1965.

	No.	%
Full-time Hospital Staff	145	42.0
Full-time General or Specialty Practice	142	41.2
Full-time Medical School Faculty	14	4.0
General Practice with Some Specialty Practice	11	3.2
Laboratory Medicine, Pathology, etc.	7	2.0
Research	7	2.0
Preventive Medicine	3	.9
Administrative Medicine	1	.3
Not in practice	15	4.4
Total	**345**	100.0

A surprisingly small number are not in practice at all. The same 15 individuals in non-medical activities (Table 13) are those described in Table 14 as not being in practice. Since the oldest Iranian graduate in the U. S. was 63 years of age, it is not likely that many of these are retired individuals. An unknown proportion of those not in practice probably have personal health problems or devot their working efforts towards commerce and finance.

3. Source of Income. A breakdown of the source of income of Iranian medical graduates exclusive of those in training shows that the largest proportion (177 physicians or 51.3%) were found to be on full_time salary. The proportion of those whose incomes were derived primarily from fee_for_service activities was somewhat less (153 or 44.3%) but still substantial.

E. Medical Faculty Appointments :

The rank of assistant professor or above was held by 11 Iranian graduates (3.2%) in U.S. medical schools in 1965. The number holding junior, part_time or irregular or lecturer is not known. Appointments at the assistant professor level and above are not readily obtainable. Cempetition for these appointments is keen, and such appointment brings with it a number of clinical scientific and professional advantages. The fact that 3.2% of fullytrained Iranian graduates have obtained professional rank suggests that they have done rather well in the competition for faculty positions.

F. Licensure Status:

In the U.S individual physicians are licensed to practice by state rather than by federal authority. Each state has a Board of Medical Examiners which has vested in it the authority to issue, withhold or revoke licenses to practice medicine within its borders. It is only for the unrestricted, independent practice of medicine that a state license is required. There are only 164 (17.7%) of the 926 Iranian graduates who hold full and unrestricted licenses to practice medicine in the U.S. There are, however, many Iranian graduates who are not in training and who do not hold licenses who are working in full_time salaried positions in hospitals.

The majority (73.8%) of the 164 Iranian graduates presently holding licenses to practice in the U.S. have obtained them since 1960. Beginning in the year 1958 at least 12 Iranian graduates have obtained licenses to practice each year in the U.S. This has gradually increased to about 18_20 per year for the last few years. All licenses to practice currently held by Iranian graduates were obtained subsequent to 1949.

Table 15

DISTRIBUTION OF YEAR OF OBTIAINING FIRST UNRESTRICTED MEDICAL LICENESES AMONG IRANIAN MEDICAL GRADUATES: December, 1965.

YEAR	No.	%
1945_1949 ❁	1	.6
1950_1954	5	3.0
1055_1959	36	22.0
1960	14	8.5
1961	19	11.6
1962	20	12.2
1963	13	11.0
1964	33	20.1
1965	18	11.0
Total	164	100.0

❁ **1949** represents the year of the oldest current license held by an Iranian medical graduate.

Data for the year 1965 is incomplete inasmuch as the total given represents only those whose licenses were reported by December of 1965. Some medical examining boards take several months to report on the licenses they have awarded.

Certification by the ECFMG (Educational Council foreign Medical Graduates) is required for licensure by all but 9 licensing boards (JAMA 1965). ECFMG certificates have been required prior to beginning residencies or internships in U. S. hospitals since July 1, 1960, and a

certificate serves to indicate that the holder has medical knowledge roughly comparable with that expected of graduates of U. S. medical schools.

G. Citizenship and Visa Status:

Data for citizenship and visa status is incomplete, as mentioned above, but enough information is available to give some indication of trends. Table 16 gives the citizenship of graduates of Iranian medical schools currently residing in the U. S. who are not in advanced training.

Table 16.

CITIZENSHIP OF IRANIAN MEDICAL GRADUATES, EXCLUSIVE OF TRAINEES: December, 1965.

	No.	%
Iran	133	38.5
U. S. Nat. citizen	100	29.0
No data available	112	32.5
Total	345	100.0

Almost all of the Iranian graduates not in training and who are now naturalized U. S. citizens (29%) were originally Iranian nationals. Of those 75 individuals who hold exchange visitors visas and the 58 who hold permanent resident visas, all 133 (38%) are Iranian nationals. The large number (nearly one-third) for whom data is not available probably are distributed in a way very similar to those for whom we have data. To the extent that this assumption is correct the probable percentage of those Iranian graduates not in training who currently hold U. S. citizenship increases to about 43%, and those holding permanent visas would increase to 25%. Without the necessary data, such inferences must be clearly labeled as speculation.

Discussion

Iranian medical graduates came to the U. S. in very small numbers before World War II. Subsequent to 1948 their numbers have grown slowly and steadily. A decline in numbers from the 1963 graduating class

onwards likely reflects the fact that many Iranian physicians now serve in the Health Corps of Iran or in the military forces before taknig advanced training abroad. of those Iranian graduates presently in the U. S. 63% (581) are in training as interns, residents, or fellows whereas the remaining 37% (345) are practicing as fully-trained or independent professionals. Slightly over 93% (865) of all Iranian graduates completed their medical studies in Iran subsequent to 1950, and most did not come to the U. S. until 2-4 years after graduation. The group is thus relatively young in composition and most members of it are in some form of advanced training. A little over one-third (37%) are fully-qualified professionals.

Iranian interns or residents typically choose the North-eastern or Middlewestern U. S. for their training. During and after training 84 (9.1%) have obtained permanent resident visas and 103 others (11.1%) have become naturalized U. S. citizens. However, the large bulk (529 or 57.1%) hold exchange visitor visas and are thus required to leave the U. S. upon completion of their training for at least two years. Some physicians travel to other countries such as Canada or the United Kingdom but the numbers who do not return to Iran cannot be ascertained at this time.

Choice of specialty by Iranian graduates seems more like that of the total foreign medical graduate group than of U. S. graduates. Greater proportions of Iranians choose general surgery, obstetrics, gynecology and pediatrics as compared with U. S. graduates. Availability of residencies alone does not seem to determine the initial choice of specialty for Iranian as much as is the case with other national groups. Choice of specialty training is often a combination of interest, chance, prior education and opportunity, but availability plays a role in selection also.

Extrapolation from data given in Table 16 and the discussion which follows suggest that about 43% of the 345 fully-trained Iranian graduates in the U. S. are now naturalized U. S. citizens, and the remaining 25% are permanent residents. One way of checking on this is to examine the licensure status of the fully-trained group. Obtaining a license to practice in the U. S. requires U. S. citizenship. Those who work for hospitals are not required to have licenses, and so one would expect a large proportion of those with licenses to be in full-time private practice. Indeed this is the case, and 142 out of the 164 with licenses (87%) are in full-time private practice. If we assume that all or most of those with licenses have become naturalized U. S. citizens then 164 of the 345 fully-trained represents 48% of the group who will not likely return to Iran.

Looked at in broadest perspective the loss of 164 physicians represents a loss of 2.1% of the physicians ever graduated from Iranian medical schools. If we assume all 345 will stay, which is unlikely, this would represent a loss of something over 4% of Iranian graduates without considering deaths or retirements.❁ If permanent Iranian physician migrants to other countries were known the total loss would likely fall somewhere between 4 and 10% of physicians ever-graduated from Iranian medical schools. Strangely enough this proportion is smaller than for some of Iran's neighboring countries and may in part be accounted for by the rather flourishing private sector much in evidence in Iranian medicine today. Although private practice has been discouraged in many Middle-Eastern countries it seems quite viable in Iran, particularly Teheran and the major provincial capitals (Ferguson, 1966). Public sector health activities are gathering momentum but it is still too early to assess their effect on medical migration. Turkish physicians migrated in considerable numbers at the beginning of the health nationalization program, but there are indicators that the rate is decreasing once again (Ferguson, 1964).

The problem for Iran of the migration of her physicians is a complex one. Iranian medical graduates came to the United States in very small numbers prior to 1947. Those who did come were usually independent and socially affluent families. Most had more to gain by returning home than by staying abroad. A stay in the United Kingdom, France, or the U. S. was an opportunity both to learn more medicine, study with leaders, and become personally and professionally identified with groups who were expert, and offered perivative prestige. Since World War II, however, training opportunities, scholarships and stipends have opened up in the U. S. to individual medical graduates of all countries who obtain a passing standards on the E. C. F. M. G. examination in the U. S. The ECFMG mechanism which permitted entry for training of physicians on individual merit has also been accompanied by the growth of international trade and commerce between Iran and the United States. Both of these circumstances have done much to enlarge the numbers of Iranian physicians who choose to come to the U. S. for advanced training. The creation of CENTO and other alliances additionally created a political climate which has favored international educational exchange in medicine and science.

❁ 1963 WHO Directory of Medical Schools states Iran has graduated 5264. With the addition of 5 graduating classes (493/yr) the figure approaches 7729 physicians which was used as a denominator.

Iranian physicians who have come to the U. S. since World II are more often from families of modest means than was the case earlier. The temptation for such individuals to remain in the U. S. at an attractive salary, or to go into private practice is often overwhelmingly tempting to those from less affluent backgrounds. For those trained in the U. S. who have no job to return to, or have only the prospect of a low paying government job at home in a small town or rural area, and in a position in which their specialty training is of little use, there is only minimal incentive to return to Iran. If in addition the Iranian marries an American girl there may be even less incentive to return. As is evident from the very few factors outlined above, without careful planning educational exchange can result in the loss of skilled human resources. Adequte professional facilities, adequate remuneration, and official recognition of advanced training abroad all seem to be essential to stimulate repatriation of highly trained medical and surgical specialists if they do not have positions to which they can return

A problem more basic than the migration of physicians are the expcetations engendered through U. S. training of physicians from developing countries. U. S. medical education teaches that it is possible for a physician to be clinically successful with patients, but it also teaches him to depend on elaborate facilities, an educated patient, and a large complement of paramedical specialists and ancillary personnel. With American traning it is inevitable that the physician from a developing country who returns to a small town, or even many urban settings will soon becom frustrated and discouraged since he was not prepared for, and in most cases is unwilling to serve for long periods in what to him is a disadvantaged community. He will thus likely migrate to the capital, remigrate to a western country. or seek a post which will remove him from this milieu. One of the solutions to this problem is to develop in each area or country, educational programs adapted to national or local health needs. The U. S. educational system is properly geared to prepare physicians for U. S. conditions and U. S. practice, and it does not automatically prepare people for the conditions which will be found upon return to their home country. There is some question whether U. S. training is appropriate for those who are to become medical practitioners in developing countries. The strengthening of local and regional programs, larger training stipends, increasing the number of training opportunities, and improving the conditions

of government service within a country are all alternatives which in the long run are less costly than the loss of physicians through migration. International exchange of medical faculty members, and the training abroad of specialists who are on leave for such training, seems a more appropriate use of international educhtional exchange. Fewer physicians will be lost under these conditions, and the benefit of their foreign training will accrue to their country as well as to themselves.

The loss of large numbers of physicians is something developing countries cannot really afford. Each physician represents an 18-20 year educational investment by both the individual and the country, but it is only through appropriate incentive the the benefits of this investment can be realized.

In addition to the gathering of data concerning number of physician migrants, some study of return rates and motivation for migration seems necessary. Such information can form the basis for decision and policy-making within a country, and provide a stimulus for the re-examination of the quality, scope and investment in graduate medical training to which the government universities and official agencies have committed themselves. Without concern on the medical profession, the government and the people, there is reason to believe that even greater numbers of Iranian physicians will seek opportunities abroad in coming years. Iran cannot afford to ignore this problem. It will not solve itself.

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Comparaison de L'action de Cinq Phenothiazines sur L'agitation Provoquee par L'amphetamine Chez La Souris Blanche.✡

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INTRODUCTION

Le problème de l'évaluation des effets pharmacodynamiques des substances dites "tranquillisantes" n'est pas encore parfaitement résolu.

Sur le plan expérimental et afin de pouvoir évaluer et comparer l'effet de ces médicaments sur l'activité motrice de l'animal, Delphaut et ses collaborateurs ont proposé d'étudier l'antagonisme des phénothiazines sur l'agitation provoquée chez la souris blanche par l'amphétamine et la cocaine [1,2]. Ils ont signalé qu'il paraît plus sûr de provoquer chez l'animal (la souris) une agitation nette et continue et ils ont montré que l'amphétamine et la cocaine réunissaient ces conditions [3].

Nous rapportons ici les résultats obtenus avec des corps d'intérêt pharmacologique récent pouvant être classés sous la dénomination de "tranquillisants" du groupe de la phénothiazine.

A l'aide d'un actogrphe de "Jaquet 2240", nous avons pu comparer, quantitativement, l'effet tranquillisant de cinq phénothizines. Les médicaments étudiés ont été: Acépromazine, Chlorpromazine, Perphénazine, Promazine et trifluopérazine.

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