ABSTRACT

In the words of Sarton, A(l)razy was perhaps the greatest clinician of all times. Originally from Rayy, he became the Chief Physician of the famous Baghdad Hospital.

His contributions in the basic sciences include his description of the recurrent laryngeal nerve, the reaction of the pupil to light, the conditioned reflex theory, congenital contagion, mercurial ointment and the investigation of mercurial purgatives.

In clinical medicine he was the first to differentiate between measles and small pox; he described brain abscess following otitis, incompetence of the aortic valve, neuropathic bladder due to spinal cord tumor, allergic rhinitis and scrofulous gangrene.

In management, he was the first to mention non-metallic catheters, the use of catgut in surgical operations, patellectomy for comminuted fractures of the patella and hot moist compresses to cover the intestines in abdominal surgery.

He left 237 works which include the following:

AlKinnash alFakhir.

The book on small pox and measles translated into Latin at least 6 times, the latest being the Gottingen edition of 1781; also into Greek, French, English and Persian.

Medical Treatise “al Mansury” (Liber Almansoris) went into at least 10 Latin editions - was still part of the medical curriculum of the University of Frankfurt in 1888.

A medical encyclopedia “AlHawy” (Continens) was translated into Latin in 1280 and had at least 5 Latin editions.

Key Words:

Arabic Medicine, History of Arabic Medicine, History of Medicine, Rhazes, Al Razy.

INTRODUCTION

In one of the most remarkable and unique historical events, the Arabs of the Jahiliyya, who were surrounded by sand and the sea, were suddenly awakened by a momentous faith which thrust them on the stage of history overflowing the confines of the desert and overrunning the Sassanid Empire to the East, the Roman Empire to the North, North Africa to the West and Spain across the Pillars of Hercules — known since as Jabal Tariq (Gibraltar) — and reaching the very heart of Europe, to Pottiers in France.

After less than a hundred years and following so much energy spent over this military miracle, one could well ask what would be the consequences of this new invasion by a nomadic race that had crumbled down the boundaries of the civilized nations of the Earth, shook their existence and shattered them to pieces?

Despite their simple nomadic origins, the Arabs diligently and successfully developed the propitious climate for the creation of a new splendid civilization.

By the end of the ninth century, all the knowledge, culture and intellectual heritage of the Greeks, Persians, Indians and Romans that had accumulated during centuries of human development, was translated into Arabic with great zeal and enthusiasm, and then was assimilated with an unexpected aptitude into a coherent Islamic Civilization worthy of the admiration of posterity.

After its nomadic, epic and juvenile adolescence, this gigantic and momentous movement, armed with the genuinely democratic and most noble faith of Islam, and with a passion for science, soon entered resolutely into the virile age of intellectual greatness.

Medicine remained one of the main streams of this vigorous cultural achievement. The standard bearers of Medicine were a chain of eminent and distinguished physicians who bloomed under the protection of a most democratic atmosphere into perseverant, famous, productive and first rate scholars who wrote...
the brightest, noblest and most glorious pages of medical history. They blossomed into a most beautiful garden.

AlRazy was not only one of these giants but he was the culmination and the crowning personality of this gigantic effort that had its origins only 200 years previously in Mecca. He is the most beautiful flower in the garden.

Time does not allow us but to pick, from the vast and varied field of Islamic Medicine, this unique flower with myriads of scents, colors and echoes.

BIOGRAPHY

Abu Bakr Muhammad ibn Zakariyya AlRazy was "the greatest and most original" (Browne) of all Islamic physicians "and one of the most prolific." Undoubtedly, he is not only the greatest clinician in Arabic Medicine, but, in the words of Sarton, "perhaps the greatest clinician of all times."

AlRazy was born in 850 (or 841 or 842), in the town of Rayy where his brother and relatives lived. Rayy is about 20 miles South of Teheran.

Early in life, music was his chief interest. In his youth he became proficient in lute playing. Later on he devoted himself to philosophy, literature and poetry. He even worked for some time, as a money changer. Ammar believes that copyists have confused the Arabic word "Sayrafa," which means money changing, with the word "Saydana," which stands for pharmacy; so that one ought to read "pharmacist" instead of money changer.

A(I)Razy's interest in medicine was aroused later in life when he was 30 or 40 years old, by his conversations with an old pharmacist at the Bagdad Hospital.

A(I)Razy's medical teacher was Abu(a)IHasan Aly ibn Rabn Sahl AlTabary who had embraced Islam before the birth of A(I)Razy and who had finished writing his textbook of medicine "Firdaws AlHikmat" in 850 AD just around the time of A(I)Razy's birth.

In no time AlRazy became the Physician in Chief of the Rayy Hospital. It was the custom of the time to include prospective physicians in a hospital educational program which had both a didactic and a clinical component. The hospital patients, who were all gratuitously treated, were first examined by medical students, then by the immediate understudies of the Chief. If the case presented any educational difficulty, it was presented to A(I)Razy and discussed at grand rounds. This program resembles to a great degree the present residency system followed in accredited hospitals in the United States of America.

After sometime at Rayy, A(I)Razy was appointed Physician in Chief to the famous Hospital of Bagdad, in the reign of AlMuktafi (902-907). Out of a hundred prominent applicants A(I)Razy was chosen to this most prestigious and coveted medical post in the whole Caliphate.

He is reported to have even been consulted about the site where the Adudy Hospital was to be founded. A(I)Razy is reputed to have hung sheep carcasses in the various quarters of the capital and chose the spot where the meat showed the least decomposition [25]. The actual founding of the Adudy Hospital of Baghdad occurred however in 982 AD, ie almost 50 years after the death of A(I)Razy. If the story about A(I)Razy's participation is fictitious, it goes to show how famous A(I)Razy was; if it is true, it may relate to the founding of another hospital in Bagdad; several hospitals were opened in Bagdad during A(I)Razy's lifetime; we know of five such hospitals (cf table of 1)20.

![Table 1](image)

<table>
<thead>
<tr>
<th>Name of Hospital</th>
<th>Date of foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baramky</td>
<td>?</td>
</tr>
<tr>
<td>Aly ibn Isha</td>
<td>914</td>
</tr>
<tr>
<td>AlMuqaddir</td>
<td>918</td>
</tr>
<tr>
<td>Savyidat</td>
<td>918</td>
</tr>
<tr>
<td>Ibn alFurat</td>
<td>927</td>
</tr>
</tbody>
</table>

Not much is known about the physical appearance of A(I)Razy except that he had a large head.

He was always busy either with patients or teaching his numerous students who had students of their own; or else he would be sitting in his study writing.

With his patients, he was generous and kind, especially with the poor.

He corresponded with the eminent scientists of his time as is shown by many of his letters.

He was remarkable for his extensive and wide knowledge of the medical works of his predecessors.

His clinical experience was unexcelled. His diagnosis was clever and smart; his management was sure and skillful. He had a tremendous reputation and his counsel was sought after by the poor as well as the rich.

In his old age, his vision began to fail due to the development of cataract. Various historians have attributed his cataract to different episodes of his life. One theory ascribes his cataract to chemical experiments that could have resulted in the production of nociferous fumes. Another theory propounds the dietary origin of the cataract; AlRazy liked black beans and was in the habit of consuming large quantities of them. A third theory surmises that Sultan Mansur AlSamany, who was angered by the inability of AlRazy to turn base metals into gold,
ordered that he be hit on the head with his book until
the book shredded to pieces! Some of these theories
seem too fantastic to be true; but whatever was the
cause of his cataract, we know that he refused to have
it operated because, in one version, he asked the oph-thalmologist about the anatomy of the eye and the
ophthalmologist could not even give him the number of the eye’s layers; in another version, a(l)Razy had
stated: “I have seen enough of this world.” He did
did not seem to care to see more of it.

As his vision continued to deteriorate and fail, he
returned to his native town and soon died at the ripe
age of 90 years.

He left several works, the most important of which
was his unfinished encyclopedia “alHawy.” For
once, Fate had turned on the generosity of History.
A(l)Razy’s sister and one of his students, Ibn al
Hamid by name, were responsible for this rare event.
The sister had the serenity and perhaps also the need,
and Ibn al Hamid had the vision and the wisdom to
prevail on her and to buy the unfinished manuscript.
It is by this happy double stroke of luck that we can
enjoy to-day and relish reading the immortal alHawy.

WORKS of A(l)Razy
A(l)Razy was a voluminous writer. His bibliog-
raphy includes 143 titles and in some works of refer-
ce this number goes up to 237.

AlHawy
The most famous of a(l)Razy’s works is AlHawy
which means “‘The comprehensive’”. It is an enor-
mous medical encyclopedia in 24 volumes. It is the
greatest, the most important, the most extensive and
the most encyclopedic of his works. It is a post-
humous work, probably compiled by his students,
from the unfinished notes and papers which a(l)Razy
left after his death and which were probably meant
for his own use.

In alHawy, a(l)Razy brings together in one work,
all the medical knowledge of the Greeks, the Persians
and the Hindus, plus his own vast experience. AlHawy is a compendium of all that had been written
in Medicine up to that time in all countries.

Not all versions of the book have the same chapter
sequence but most have the following books: Neuro-
logy, Ophthalmology, Ear Nose and Throat, Pulmo-
nology, Cardiology, Gastroenterology, Obesity, Lac-
tation, Nephrology and Urology, Elephantiasis,
Rheumatology, General Medicine, Fevers etc . . .

In alHawy a(l)Razy quotes several Greek works
which are not known to have been translated into
Arabic. The only way that he could have reviewed
them would be in the original Greek. This is the
reason we are led to presume that a(l)Razy knew
Greek.

AllMajusy, writing 55 years after the death of
a(l)Razy, stated that there were only two complete
copies of alHawy; in his words, the Hawy is
“... very comprehensive, in that it contains
everything necessary for the student of medicine to
know in remedying diseases and ailment. . . . The
material is unsystematically compiled. It lacks the
classification necessary for scientific work, which is
expected from so eminent an author. It seems to me,
knowing the author as I do, that he intended one of
two things: either that the work be a repository file for
his own use, fearing that something might happen to
his other works and in that case the Hawy might then
suffice for all; or he may have intended it to remain as
a register of his achievement with the expectation of
resuming its revision and classification later on.
Something must have hindered him, and death ter-
minal his life too soon for the completion of the
task.”

Even today, no complete manuscript exists, only
incomplete versions adorn the libraries of Escorial,
Oxford, Munchen, Leningrad, Berlin and the
SIHML. Ammar believes that because of its enor-
mous proportions, the Hawy has frightened and
scared away even the assiduous copyists and has sur-
passed the resources of all but the richest bibliophiles.

In alHawy are found a series of about 40 clinical
observations, complete with the name of the patient,
the symptoms, the diagnosis, the treatments and the
results. Here is a sample of a(l)Razy’s clinical notes:

“Abdullah ibn Sawada used to suffer from
attacks of mixed fever, sometimes quotidian,
sometimes tertian, sometimes quartan, and
sometimes recurring every six days. These at-
tacks were preceded by slight rigor, and mictur-
tion was very frequent. It is my opinion that
either these excesses of fever would turn into
quartan, or that there was ulceration of the
kidneys. Only a short while elapsed before the
patient passed pus in the urine. Therefore, I in-
formed him that these feverish attacks would
not recur, and so it was.

The only thing which prevented me at first
from being definite that the patient was suffering
from ulceration of the kidneys was that he
had previously suffered from tertian and other
mixed types of fever, and this to some extent
confirmed my suspicion that this mixed fever
might be from inflammatory processes which
would tend to become quartan when they waxed
stronger.

Moreover the patient did not complain to me
that his loins felt like a weight depending from
him when he stood up; and I neglected to ask
him about this. The frequent micturition also
should have strengthened my suspicion of
ulceration of the kidneys . . .

So when he passed the pus I administered to
him diuretics until the urine became free of pus,
after which I treated him with terra sigillata,
Boswellia thurifera, and dragon’s blood, and
his sickness left him, and he was quickly and completely cured in about two months. That the ulceration was slight was indicated by the fact that he did not complain at first of weight in the loins. After he passed pus, however, I inquired of him whether he had experienced this symptom and he replied in the affirmative. Had the ulceration been extensive, he would of his own accord have complained of this symptom. That the pus was evacuated quickly indicated a limited ulceration. The other physicians whom he consulted besides myself, however, did not understand the case at all, even after the patient had passed pus in the urine."

This is an example of the case reports where a(ı)Razy emphasizes the history, the symptoms and the signs of a disease, then discusses the differential diagnosis so well that he has been considered as one of the greatest clinicians of all time.

A(ı)Hawy has been abridged by Ibn Ishaq, the vizir of Abd(ı)Rahman a(ı)Nasir. Another abbreviated copy, done in the 12th century, is found in Florence.

A(ı)Hawy was translated into Latin as "Continens," in the year 1279, under the auspices of Charles I of Anjou, the King of Naples, by the Sicilian physician Faraj ibn Salim, known in the West as Fararious Faragut, who relates: "... this book remained unknown for a long time until the most christian King Charles, King of Jerusalem and of Sicily, stricken by its fame and conscious that this work could be useful to him and to all christians, wanted to combine to his warring activities the cult of liberal studies and had it translated. To obtain the book, he sent a solemn delegation to the King of Tunis accompanied by a trusted and worthy man who was skillful in both Arabic and Latin and thus ignited the torch of translation. He had it reviewed by his own physicians and by other physicians from Naples and from Salerno giving them ample time for the review. All, with a common voice, agreed to praise both the translator and the translation."

Five Latin editions are known. The first was published in Brescia in 1486 by J. Britannico, its title was "Liber dictus Elhavi;" the second, third and fifth were published in Venice in 1529, 1542 and 1562 respectively.

The book was still part of the medical curriculum at the University of Tubingen until the 15th century and at the University of Frankfurt in 1588.

The section on Ophthalmalology was translated into German by W. Brunner "Die Augenheilkunde des Rhazes" (Diss. Berlin, 1900). The first book was translated into French and published by P de Konig in "Trois traites d’anatomie arabe" (884 p, Leyden, 1903).

The book was never published in Arabic.

a(ı)Fakhir

a(ı)Fakhir (The Splendid or Precious) is, I believe, a(ı)Kunnash alFakhir, a copy of which is found in the Sami I Haddad Memorial Library under No. 12. This is a book on therapeutics and includes what had already been written by previous authors with references and what a(ı)Razy himself has to say. It is written in such good Arabic that the unaware reader cannot suspect the Persian origin of its author. The etiology and the symptomatology of the diseases are briefly mentioned but the treatment is discussed at length. The book has two parts and as was usual at the time, the author starts with diseases of the head and goes down to the foot. Here is an abbreviated form of the contents:

**Part One**

1. Head
2. Hair
3. Headache
4. Memory
5. Coma
6. Sleep

**Part Two**

1. Hepatopenology
2. Ascites
3. The diarrheas
4. Hemorrhoids
5. Parasitology
6. Herniology
Sahl (918-919). He was a fruitful writer, a philosopher, a series of don'ts, a long list of things to avoid including sleeping on a low pillow since he was a great scholar himself and the father of alBalkhy who is remembered not only from alRazy's age as alRazy, he was born in 850 in Shamistiayan or Mentha aquatica 1211.

Coryza in 1977 124, 431. This is actually the first mention and the first description of his hay fever but also on his own merits. This pamphlet has survived on folios 79b, 3-80b, 8 of a manuscript by Ibn Serapion entitled "alFusul almuhimma" under number 38: "alZukam alAbdan wa alAnfus" which can be translated as "Coryza when the roses bloom." The pamphlet was recently published under the title "alBalkhy's roses coryza" in 1977 [24, 43].

The patient is no less a person than Abu Zayd alBalkhy who is remembered not only from alRazy's description of his hay fever but also on his own merits since he was a great scholar himself and the father of Arabic geography [8, 27, 46]. alBalkhy was the same age as alRazy, he was born in 850 in Shamistiayan near Balkh, came to Bagdad as a young man and remained the student of alKindy for eight years. He later became the secretary to the Amir of Maru, Ahmad ibn Sahl 918-919. He was a fruitful writer, a philosopher, a historian and a geographer. He left 54 books and pamphlets among which are the following:

1) Suwar alAqalyn (on Geography) which remained the quarry from which all subsequent geographers profited such as alAstakhry and Ibn Hawkal [13, 32, 35, 52]
2) The qualities of mathematicians Masalith alAbdan wa alAnfus [6]

Bur' at alSa'at
Bur' at alSa'at, which means diseases that are cured in an hour or less, was translated into French and published by P. Guigues in Beyrouth in 1904. Several Arabic editions are available.

A book on quackery
It was translated into German and published by Steinschneider in Virch Arch vols 36 & 37.

Arcandorum liber
This is a book on chemistry, it contains a list of 25 pieces of chemical apparatus (cf Sarton p 609).

Kitab alAsrar
This book was translated into Latin by G. Cremona and became the chief source of chemical knowledge in the Middle Ages until it was superseded in the 14th century by Ibn Jabir's book [51].

On Plague
De pestilentia or De peste is another of alRazy's books.

alJudary wal Hasba
alJudary wal Hasba (De variolis et morbiliiis) on small-pox and measles, is alRazy's most original work. It is the first monograph ever written on the subject. In it, alRazy gives the first lucid and rational account of small-pox which was hitherto confused with measles or, according to another theory, had not yet been observed nor described.

The book establishes alRazy as one of the keenest original thinkers and one of the greatest clinicians. alRazy attributed the etiology of small-pox to a ferment in the blood, something like must in wine. This is the first suggestion of the fermentation theory of disease which was later expounded by Pasteur. The heart, alRazy adds, spreads this ferment by way of the blood, through the arteries, to the whole body. This is the first intimation, not only of a blood borne disease, but also of the fact that alRazy seems to have understood that the role of the heart was to circulate the blood.

Max Neuberger has written: "The book is regarded by all, and rightly so, as a masterpiece of Arabic medical literature. As the first known monograph on small-pox, it has an important place in the history of epidemiology, and show us that alRazy was a cons-
cientious physician, free of dogmatic prejudice. In this book, we see the first great clinical observation concerning exanthematos and eruptive diseases along with remarkable hygienic rules such as the placement of the patient in a warm atmosphere with sustained prophylactic measures for the eyes, the mouth and the nasal cavities."


The book was translated into Greek by Jacques Goupy and published in Paris in 1548. Latin editions also appeared in Strasbourg (1549), Venice (1565) and London (1747).

The original Latin translation was later revised by Reverend Dr. Thomas Hunt. This revised Latin translation was used by J Theobald to prepare the first English translation (London, 1749).

The book was translated into French by Jacques Paulet (Paris, 1763).


The last Latin edition was that of Göttingen (1781). A second English translation, by William A Greenhill, was published by the Sydenham Society in London in 1847 or 1848.

A second French translation, by Lucien Leclerc and Lenoir was published by Bailères, Paris, 1866.

Cornelius van Dyck published the original Arabic version in London in 1866 and again in Beirut in 1872.

A German translation, by Karl Opitz, was published in Leipzig in 1911 in "Klassiker der Medizin."

A Persian translation was prepared by Najmabadi and published with the original Arabic and with commentaries and annotations in Teheran in 1965.

This monograph was published, in one language or another, a total of 35 times in less than 350 years.

Medical textbooks

a(l)Razy wrote several other books on general medicine, however, they did not survive the ravages of the centuries. We only know their titles:

aIMudkhal (The Introduction)
aIKafy (The Sufficient)
aJIami (The Compendium)
aIMuluky (The Royal) was dedicated to Amir Ali son of the sovereign of Tabaristan

Neurology

This book was mentioned by Ibn Juljul

a(l)Tibb a(l)Ruhany

The title of the book means the medicine of the soul; it contains discussions on the philosophy of medicine.

Pediatrics

This book is probably the first textbook on Pediatrics ever written [37]. The original Arabic text has been lost, but the book is preserved in its Latin translation which was first printed in 1481. The book has also been translated into German and English. An Italian translation was published in 1959.

APHORISMS

The aphorisms of a(l)Razy have never been collected; they are still scattered in his writings. Here are some of them:

A patient should limit himself to only one physician in whom he has confidence, because he is more often right than wrong. But he who goes to many physicians, shall fall into their compounded errors.

A competent physician and a compliant patient shorten the duration of the disease.

Treat not with drugs what you can treat with diet; do not use compound drugs when you can use simple ones.

The physician should aspire to cure his patient more than to take his money; he should also prefer the treatment of the poor rather than the treatment of the rich.

The physician should persuade his patient that he will get better and should always entertain in him the hope of a cure even if the issue is in doubt; because the reaction of the soma depends on the frame of the psyche.

What one reads has much less value than the actual clinical experience of a thinking and reasoning physician.

CONTRIBUTIONS [19]

In the field of cosmo logy, a(l)Razy propounded that the earth is spherical, that it rotates around an axis passing through its two poles, and that it is smaller than the sun and larger than the moon.

In the basic sciences, he investigated the problem of specific gravity by means of the hydraulic balance, which he called almizan a(l)taby'y.

In anatomy, he was the first to describe the laryngeal branch of the recurrent laryngeal nerve; "this nerve, he notes, is sometimes double on the right side" [12 p 200, 17 p 69, 29 p 133].

In physiology, he anticipated Sherrington's conditioned reflex theory (cf his book "Habit which becomes natural" [15]). He also was the first to recognise the pupillary reaction to light [15].

In epidemiology, he was the first to describe congenital contagion [29 p 97].

In pharmacology, he applied his chemical knowledge to medicine. He was instrumental in the introduction of mercurial ointments to the pharmacopea [11 p 72]. His name thus survived in two preparations: white lead ointment known in the Middle Ages as "Album Rhasis" and certain eye trocchisci known as
In surgery, only a few of his contributions will be mentioned. He was the first to mention the use of non-metallic catheters [17]. He introduced the all important use of animal gut as a ligature in surgical operations (Hawy vol. 16 p 18, and ref 19); and the use of hot moist compresses to cover the intestines during abdominal operations (Hawy 16 208).

He advised patellectomy for comminuted fractures of the patella 1000 years before Brooke popularised the procedure in 1937 [Hawy 13 210].

He described bladder paralysis caused by a spinal cord tumor in a man called Qattan (Hawy 16 194).

He was the first to give several very clear and detailed descriptions of scrotal gangrene [Hawy folios 237 & 270], 1000 years before it was described again by Fournier (1832-1914) whose name is presently attached to the condition.

In clinical medicine, he was the first to describe brain abscess following otitis [Hawy vol. 16 p 191-192]; he reported one of the first cases of aortic valve incompetence [29] and he was one of the first to describe the hepatopetal syndrome [Hawy 16 207].

EPILOGUE

Such is the man, his works, his contributions and his influence. He belongs to the Persian heritage, to the Islamic heritage, to the Arabic heritage, and to humanity at large without distinction of race, color, language or religion.

For almost fifty years now, the portrait of this great Muslim physician adorns the Chapel at Princeton University [18]. A stained glass window in the narthex or vestibule of the Chapel depicts a(l)Razy writing the title and the first introductory words of his masterpiece, alHawy. His is one of the very few Muslim figures which appear in the Christian Churches. The artistic work was executed by Charles J Conning of Boston and was donated by Mrs. Mary Ludington McKeen, of Omaha, in memory of her brother, Dr. Paul H Ludington, Dr. Ludington graduated from Princeton in 1894 and later became a member of the faculty of the College of Medicine of the University of Nebraska. During his life he had formed an admiration for the work of a(l)Razy.

REFERENCES

1. Al Arudy Nidhamy: Cahar Maqala
4. alBayruny: Fihrist amal a(l)Razy cf No 38.
8. "" I 299 & SI 408, 1898.
29. Kcy s TE
27. Ibn K hallikan (1211·1282): Wafayat alA 'yan (Arabic). Cairo,
21. H addad Fand S: Clini ca s from Arab medicine . Acta
16. Ouiguts P : La gueric on c n unc hcurc par Raz ts (futc ct
17. H addad 5 1 : Iknlal alcanin, from Arabian medicin e , i n
23. H addad 5 1 : Iknlal alcanin, from Arabian medicin e , i n
22. P ermanent contributions of Arab medicinc (10 be
187!.
13S9 · 136 S, 1976.
11 . Ca mpbell 0 : Al11bian Medicine and ils innuencc on the Mid­
14 . Eigood C: Medical h b tor y or Per sia: Cambridgc, 19 S7.
12. Cumming: An introduction to the history of medicine . Lon­
25. I bn aby Usaybi'a ( 1 203· 1 269): Uyun alAnba' fy Tabaqat
11. Cum s IO" : An introduction 10 the hi story of medicine. lon­
10. Athenes.
5. Miquel A: La g eographie humaine du monde musulman jus­
4. Sarton; Introduction 10 the hiSlory of Sciencc. Baltimore,
3. de Ktlnfg P: Trait.: sur Ie calcul dan s les reins el dan s la vessie
2. de R hales, Leydc , 1886 or 1896.
1. Wiedemann E: Zur Gtsehichte der Alchcmic Setzungsbet- der

**NEUROLOGIST NEEDED**

A position for a NEUROLOGIST is available in the growing community of Tampa, Florida. You must be either Board Certified or Board Eligible in Neurology and have a Florida license.

Interested applicants may contact:

Husain F. Nagamia, M.D.  
500 Vonderburg Drive  
Suite 203 E  
Brandon, FL 33511  
(813) 251-2075