CHAPTER FIVE

A Suggested EMP Course

5.1. The objectives of the EMP course are clear now. They are to help our medical students perform different tasks, which will eventually equip them with the linguistic skills needed to understand authentic medical texts. However, the difficulty level of the tasks has to be controlled and graded in various ways, keeping the following points in mind:

(1) The regulation of the absolute amount of information constitutes the main source of linguistic control.

(2) It may be possible to control the length of the pieces of the medical writing for presentation to the students in short stretches of time.

(3) The primary aim of the EMP course is to help students understand what they read. The style of one author may be different from that of another, and thus, the students should read the simplified versions of these texts before they go on to read the sophisticated ones. Simplicity will include style and lexis. The higher the level of the course, the more sophisticated the style and more specialized the lexis.

5.2 From the responses to the questionnaire and from an assessment of the students' needs, the following are obvious
(a) The time devoted to TEMP course at present is inadequate.

(b) Ideally speaking, the time devoted to TEMP needs to be quadrupled.¹

(c) The course content is also inadequate and needs to be revised.

Based on these, the researcher has designed an EMP course for medical students which would require about 90 class hours for effective completion. The course consists of 10 units with extensive and varied exercises. As for the time factor, the researcher has designed a course which can be done in the first year itself if 3 hours per week are devoted to ESP/EMP, instead of the present 2 hours per week. The break up of time for the 10 units is as follows:

1. Classroom teaching = 5 x 10 = 50 hours
   (five hours per unit for 10 units)

2. Oral presentation = 37.5 hours

   (Calculated for 150 students, giving each student 15 minutes per year. Each student can make 3 oral presentations of 4-5 minutes duration during the year.)

   Total = 87.5 hours.

¹See Table 7 in chapter III.
From the responses to the questionnaire, it was clear that the students, as well as the faculty, are in favour of a four-fold increase in the time devoted to ESP/EMP. Assuming that this kind of increase may not be possible due to administrative and operational constraints, and also assuming that some increase in the time devoted to EMP is imperative, the researcher has worked on the premise that it would be feasible to give the students 3 hours per week for the 29 week academic year, which marks a 50% increase over the time devoted to ESP/EMP at present.

5.3. Text Selection:

As per the analysis of our survey reported in chapter 3 of this work, our students reveal themselves to be sufficiently highly motivated to carry out the amount of reading required, do certain writing tasks, and more importantly, to perform listening and speaking tasks which are deemed necessary at the academic and occupational level. Thus, the selection of texts for use in our sample materials was based on the following criteria.2

(1) Appropriacy: the texts chosen must be selected from the students' field of study and be of a linguistic and conceptual level which suits the students' ability.

2For more details see C.J. Brumfit (ed) (1986). ESP for the University. ELT Documents: 123.
(2) Authenticity: the texts must be acceptable in terms of language and content to a subject specialist.

(3) The cultural components: the scene of the texts must be quite familiar to the students, in a way that they may feel that the course is relevant to the situations they are likely to encounter in college and hospitals.

(4) Minimising the quantum of unfamiliar lexis: lexis may cause significant problems in the comprehension of texts by students. It is advisable to start with simple lexis and go on to the more specialized ones in proportion to the progress of the students.

(5) Since one of the primary aims of the course is to develop proficiency in spoken English so that the learners can present short expositions on specified topics, some texts can take the form of dialogues.

(6) The selection of texts must be consistent with the type of tasks that the students are required to perform.

5.4. Selection of Language:

When designing the materials on a notional/functional basis, the situation has to be given primary importance. As the objective of the course is to develop the abilities of the students to carry out certain tasks through language, it is advisable that the basis should be a functional/structural one.
Based on the criteria outlined above, the researcher has selected 10 text-units. These texts have been carefully selected keeping in mind the kinds of medical discourse and topics/themes the learners are likely to come across in their field of specialization. Moreover, the texts have been arranged in an ascending order of difficulty and complexity in terms of structures and specialized vocabulary. For this purpose, an actual count of the structures was made, in terms of 'simple' and 'compound/complex'. This count was matched with a count of the occurrence of specialized lexical items. The two counts provided a valid basis for arranging the texts in a particular order.

5.5. The Exercises:

The exercises following each text-unit are many and varied but they have one basic aim. The aim is to enable the medical student utilize his comprehension of the reading passage to perform certain communicative activities which are of importance in the medical discourse.

The 'true/false' exercise is a good check on the comprehension of students of the reading passage. It is not enough to say that this is false or true but the important thing is that the student should be familiar with what leads him to decide one way or the other.
Another exercise is 'contextual reference' which basically aims at directing the attention of the student to the way cohesive devices work in spoken or written discourse.

Our students are passive users of grammar. Thus exercises like derivation of nouns or adjectives aim at refreshing their knowledge of grammar.

The rhetorical functions of definition, description, explanation, etc. are introduced through many exercises. The central aim is to bring to the student's notice the ways in which sentences are used to perform different acts of communication and how such acts are related to one another in the development of a discourse.

The 'translation' exercise is important as the trend is towards increasing use of Arabic, a situation which requires the students to read their textbooks in Arabic and the supplementary references in English.

The 'information transfer' exercise is directed at showing the learner how he can use his knowledge of English to perform acts which are of medical nature.

The 'oral presentation' exercise is directed to offer the students ample opportunity for expansion on the topic of the text.
1. AIDS

Student: What is AIDS?

Doctor: The four initials stand for Acquired Immuno-Deficiency Syndrome, sometimes called "gay plague". It is a disease in which the natural body defence against disease and infection collapses. The body is rendered defenceless and the patient ultimately succumbs to the disease. It has been reported from the U.S.A., Canada, Brazil, Australia, New Zealand, Thailand, Hong Kong, Caribbean Islands and Africa. Till March 1986, 22000 cases of confirmed AIDS have been reported from all over the world.

Student: What causes AIDS?

Doctor: AIDS is caused by a retrovirus known as Human T cell lymphotropic virus (HTLV III). It is also known as AIDS retrovirus (ARV) or lymphadenopath virus (LAV).

Student: What is the incubation period of AIDS?

Doctor: The incubation period is the time period between the entry of the virus into the body and appearance of signs and symptoms of the disease. It is about 29 months in adults. Shorter incubation period of about 12 months has been observed in children. Longer periods of up to five years have also been reported.

Student: How is AIDS transmitted?

Doctor: AIDS does not spread by casual contact. The virus cannot
survive outside the body and hence it is not contagious. It is spread through body secretions, body fluids and excreta. The virus has been shown to be present in blood, genital secretions, saliva, tears, mother's milk, CSF, brain tissue, stool and urine. The transmission of AIDS requires intimate contact. It is transmitted:

1. By sexual contact.
2. Through contaminated needles in cases of drug addicts.
3. Through blood/blood products transfusion.
4. It can be transmitted from mother to child during pregnancy, during labour or after the birth of the child.

Student: Who are the people at risk?

Doctor: They are:

1. Homoosexuals and bisexuals who have large numbers of sexual partners.
2. Drug abusers who inject drugs by common syringes.
3. People who receive frequent blood transfusion.
4. Babies born to mothers suffering from AIDS.

Student: What are the signs and symptoms of AIDS?

Doctor: Aids manifests in two major ways in countries from where it has been reported:

1. Kaposi Sarcoma.
2. Opportunistic infections.
However, not everyone who gets the infection dies of it. The majority of the people who get the infection appear to recover from it. They never develop AIDS but are potentially infectious to others. Acutely infected persons usually exhibit no illness at all.

Student: Is there any treatment for AIDS?

Doctor: At present, there is no specific treatment for AIDS. Two methods of treatment should be possible (i) by reconstituting the shattered immune system, and (ii) by antiviral drugs. The treatment of Kaposi Sarcoma is unsatisfactory. The treatment of opportunist infection depends upon the organisms causing the infection.

Student: How do we prevent AIDS?

Doctor: 1. Contact with many sexual partners should be avoided.

2. Oro-genital and anal sex should be avoided.

3. Condoms should preferably be used.

4. The high risk groups should have regular check-ups.

5. Common razors, tooth brushes should not be used.

6. AIDS patients should take precaution not to give the infection to others.

7. Precautions should be taken in the use of blood and blood products which should be certified as being free from AIDS.
EXERCISES

Exercise A:
State whether the following are true or false. Correct the false statements.
1. AIDS is the other name given to heart disease.
2. All AIDS cases will die of this disease.
3. The AIDS virus can survive outside the body.
4. The fatal disease is transmitted by sexual contact.

Exercise B:
(A) Consider the following sentence which realizes the function of "Cause and Effect". Identify the cause and the effect.
AIDS is caused by a retrovirus known as Human T Cell lymphotropic Virus (HTLV III).

(B) In the lines 24 and 25, the sentence is shown to clarify the previous sentence, what was the technique used?

Exercise C:
A contextual References:
1. 'It' in line 3 refers to ....
2. 'It' in line 19 refers to ....
3. 'It' in line 30 refers to ....
4. 'They' in line 53 refers to ....

Exercise D:
Without referring to the text, complete the following paragraph supplying appropriate prepositions:
Two methods -- treatment should be possible (i) -- reconstituting the shattered immune system, and (ii) -- anti-viral drugs. The treatment -- Kaposi Sarcoma is unsatisfactory. The treatment of opportunistic infection depends -- the organisms causing the infection.

Exercise E : Interrogation

Ask questions considering the information below :

1. There is a treatment for AIDS.
2. AIDS is caused by a retrovirus known as (HTLV III)
3. The incubation period of AIDS can range from 1 to 5 years.
4. AIDS is transmitted in so many ways.
5. There are several signs and symptoms of AIDS.

Exercise F : Translation

Translate into Arabic from sentence 8 to the end of sentence 11.

Exercise G : Analysis into lists

Write out the following lists in your notebook completing them with reference to the passage.

1. There are two possible methods for the treatment of AIDS:
   (i)
   (ii)
2. AIDS can be presented by:
   (i)
   (ii)
   (iii)
   (iv)
   (v)
   (vi)
   (vii)

3. The people at risk are:
   (i)
   (ii)
   (iii)
   (iv)

4. AIDS has been reported from:
   (i)
   (ii)
   (iii)
   (iv)
   (v)

Exercise H:

Prepare for oral presentation and discussion:

AIDS & Vaccine

AIDS - Phobia.
2. Myocardial Infarction

Physician: Hello, Dr. Katz. How's Mr. Jensen doing?

Intern: Just fine, considering what he had.

Physician: What do you think he had?

Intern: An MI.

Physician: I have to agree with that. Why don't we go to the lounge and discuss the problem? Then we can come back and see Mr. Jensen again.

Intern: Fine.

Physician: What did you find on the physical exam?

Intern: There really was not anything remarkable.

Physician: Does that surprise you?

Intern: No, not really.

Physician: What conditions would you think of in ruling out an MI?

Intern: Pulmonary embolus, severe angina pectoris, dissecting aneurysm, and acute pericarditis.

Physician: That is quite good. I would also consider esophageal spasm and acute intra-abdominal processes. He was not in shock when I saw him, nor was there any evidence that he was going into acute pulmonary edema. Would you expect to see fever at the onset of this condition?

Intern: Yes. I would.

Physician: It is usually absent at the onset, in contrast to acute pericarditis. It usually will rise within 24 hours and remain about a week.
Physician: Have any of Mr. Jensen's lab studies come back?

Intern: Yes, they're over here.

Physician: Well, his white count is normal. This will probably go up tomorrow and stay up for about a week. Will you please order another one for tomorrow?

What would you expect the sed rate to show?

Intern: That also goes up about the second day and will remain elevated for more than a week.

Physician: How about enzymes?

Intern: His CPK is elevated, but we have not gotten the serum glutamic oxaloacetic transaminase (SGOT) or lactic dehydrogenase (LDH) back yet.

Physician: What might the elevated CPK represent?

Intern: CPK is produced from injured muscle. The myoglobin (MB) fraction is specific for myocardial injury, but we won't know if this CPK elevation is the MB fraction until later in the 45 day.

Physician: Has the cardiogram come up to the floor with the rest of his chart?

Intern: Yes, it has. Here it is.

Physician: Here are elevation of the ST segment and T wave inversion, and the T waves are lost in the precordial leads. His rate and rhythm appear to be all right.

What complications will you be looking for during his recovery period?
Intern: Congestive heart failure; pulmonary embolus, secondary to phlebitis of the leg; arrhythmias; cerebrovascular accident; rupture of the heart; and shock.

55 Physician: What are the most common arrhythmias during this period?

Intern: Ventricular premature beats are the most common. Atrial fibrillation and prolonged AV conduction are next.

60 Physician: Let's see him for a few minutes now.

Physician: Mr. Jensen, how are you?

Patient: A little better than this morning.

Physician: Has the chest pain decreased a little?

Patient: Yes, it has.

65 Physician: Do you feel short of breath at all?

Patient: No.

Physician: Do your legs hurt when I do this?

Patient: No, they do not.

Physician: Let us unbutton your shirt for a minute so I can listen to your heart. That's fine. You just lie still and let me do all the work. Now take a few deep breaths. Fine. Has your wife been in to see you yet?

Patient: She will be here in about an hour.

Physician: Fine. Dr. Katz will be here if you should feel any shortness of breath or have difficulty lying on one pillow. Let the nurse know, and she will tell Dr. Katz about this. Remember, it is very important.
A moment later:

80 Physician : Dr. Katz, please let me know if anything happens.

Intern : I certainly will.

Physician : If he should go into failure and you can't get me, start treatment right away. See you tomorrow.

Nurse : Dr. Katz, sorry to wake you up, but Mr. Jensen has been very restless. He has great difficulty in catching his breath, and he is sitting up in bed now. I think he may be in pulmonary edema.

Intern : All right. I will be right down. Please start four liters of oxygen by face mask, and get 40 mg of Lasix and an arterial blood gas set ready. Hook him to the EKG machine, and run a twelve-lead cardiogram for me. I will call Dr. Yamada.

A few moments later:

Intern : Hello, Mr. Jensen. I understand you have been having some difficulty.

Patient : Yes. About an hour or so after I lay down. I had to sit up to catch my breath, and I have not been able to catch it at all.

Intern : Just let me examine you for a few minutes. Let us roll the head of the bed up so that you can sit upright.

Mr. Jensen, some fluid is accumulating in your lungs,
and that is what is making it difficult to breathe. We're going to take some measures to help relieve the problem. You're already getting oxygen, and I'm going to give you an intravenous injection of a diuretic to help force some of the fluid out of your system.

Nurse: We have Dr. Yamada on the phone. Dr. Katz. Do you want to talk to him now?

Intern: Yes. I will be right there. Hello, Dr. Yamada. I'm sure the nurse has told you what has happened.

Attending: Yes, she did.

Intern: Mr. Jensen's neck veins are distended; he has persistent basilar rates and a gallop rhythm. His liver is down one finger breadth, and there is some slight sacral edema. He's not in shock, presently.

Attending: What have you done for him?

Intern: I've given him oxygen and 40 mg of Lasix intravenously, and I am about to draw a set of arterial blood gases. I think we should place a Swan-Ganz catheter immediately.

Attending: I agree with you. Give him some morphine if he is still dyspneic. I will be down right away.

EXERCISES

Exercise A:

What do the following initials stand for?
ECG, CPK, SGOT, LDH, MI

Exercise B:

Define the following according to the structural forms you have been taught earlier:
Myocardial infarction, arrhythmias, shock, Cerebrovascular accident, heart failure.

Exercise C:

Write the phonetic transcription of the following:
Oxygen mask
Lasix
Syndrome
Sacral edema
gallop rhythm
diuretic
intravenous

Exercise D:

The following are some common locative prefixes:
extra - (outside)
intr - (inside)
inter - (between)
para - (beside)  
peri - (around)  
sub - (below)  
infra - (below)  
supra - (above)  
Write out the following sentences, filling in the blanks in the right hand column:

(A) 1. Fluid outside the cells .......... cellular fluid.  
     2. Matrix between the cells .............. matrix.  
     3. Duct between lobules .............. lobular duct.  
     4. Nerve below the orbit infra .............  
     5. Life within the uterus .............. uterine ....

(B) 1. Intravenous ..................  
     2. Intermuscular ..................  
     3. Subepidermal ..................  
     4. Subcostal ..................  
     5. Intracellular ..................  

Exercise E:
Join into complex sentences.
Let's roll the head of the bed up.
You can sit upright.
He is still dyspneic.
Give him some morphine.
He was not in shock.
I saw him earlier.
Exercise F:
Count how frequently the writer has used the adverbs of place (A place) and the adverbs of time (A time), and tabulate your data in a form of table.

Exercise G:
Fill in the blanks with the appropriate prepositions where necessary:
Just let me examine you ________ a few minutes. Let us roll the head of the bed ________. Mr. Jensen, some fluid is accumulated ________ your lungs, and that is what is making it difficult ________ breathe.

Exercise H:
Correct the false statements:
1. CPK is produced from injured artery.
2. There is no difference between MI and shock.
3. It is not advised to give oxygen to a patient suffering from MI.

Exercise I:
Write short dialogues for oral presentations on one of the following:
Heart failure, Jaundice, Hepatitis, Shock

Exercise J:
Translate into Arabic the paragraph which starts from:
That's quite good. I would also . . . . . . . . . . . . would you expect to see fever at the onset of this condition.
3. Lasers

Giles Newton : Susan, I was enjoying that programme.

Susan Newton : I want to know something, Giles, about laser beams. You have read the subject up, but I know nothing about it.

Giles : But we're going to see a demonstration tomorrow.

Susan : Yes, I know, but if I am going along as your wife or your secretary-or both-I'll be more of a credit to you if I know a little bit about it in advance.

Giles : Okay! What do you want to know?

Susan : Well, what is it? What does the word 'laser' mean?

Giles : Light Amplification by Stimulated Emission of Radiaiton.

Susan : Oh, yes, I see. L.A.S.E.R. laser. "quite simple, really".

Giles : Once it's been explained to you, of course. Do you know anything at all about laser beams.

Susan : Well, it was in that James Bond film 'Goldfinger'.

Giles : Yes - I remember the scene. James Bond was lying on a gold table, and the table was being cut down the middle by a laser beam.

Susan : The idea was that it would eventually cut James Bond in half as well, could it really do that?

Giles : Oh yes'. At least, a laser could cut the table.
But not James Bond?

Don't be so disappointed. So far, if my facts are up-to-date, the laser won't penetrate the body.

But I thought they were using it to cure cancer?

Experimentally. And, even so, it can only be used on skin cancer.

But what is a laser beam? You say it's a beam of light. But there are beams of light from car head-lights, from pocket torches, from searchlights and so on. They don't do any of the things that a laser beam does. So what is special about a laser beam? What makes it different from the other beams of light?

Well, light consists of waves. These waves are very short - much too short to see directly. And ordinary light consists of waves all out of phase, out of step, with each other. White light or sunlight is also a mixture of every possible wavelengths. Waves of red light are about twice as long as waves of blue light. So white light is a mixture of all possible wavelength, all out of step with each other.

And what about laser beams?

Well, first, all the waves in a laser beam have the same wavelength. A laser beam has a very definite colour. The red colour of the ruby is one of the
most widely seen colours in them. But the difference between an ordinary beam of ruby red light and a laser beam of ruby red light is that in the laser beam the waves are also all in step with each other. So compared with any ordinary beam of light, the laser beam is a very orderly affair indeed. It's like a military march-everyone in step. In an ordinary beam, the waves are like the people in a crowd going to a football match, jostling and bumping into one another.

Susan: Does this orderly behaviour of the laser beam make a big difference?

Giles: Oh yes, and there's one more difference. Most beams of light, like the car headlamp, for example are continuous. They shine all the time. But the laser beam is intermittent, and it's off much longer than it's on. Because these switches on and off are very fast, the eye doesn't see them. While the laser beam is off the energy for the next flash is building up, and when it comes, it's a very intense flash indeed. So lots of power can be packed into a laser beam.

Susan: Are there any other differences?

Giles: Yes. As ordinary beam of light diverges, it gets wider and wider, and therefore, dimmer and weaker as it goes on. But a laser beam doesn't diverge in
this way. So it carries its energy in a compact form, until it's absorbed when it strikes something opaque.

Susan: I see.

Giles: So that's why a laser can drill holes in hard jewels, for example, industrial diamonds, and others used in machine bearings.

Susan: Well, go on.

Giles: A laser can punch holes in steel, or in the tough ceramics used in the interiors of jet and rocket engines. It can be used like radar to track satellites - and to map cloud structures or . . . .

Susan: Is it used for medical purposes?

Giles: By very careful control of the dosage of light energy in the flash of a laser beam the surgeon can perform operations on the human eye which are much more difficult to do than by other means, for example, in the case of damage to the retina. The laser is a very useful tool for the sealing of tears in the retina of the eye which, if left untreated, might, in a large proportion of cases, lead to the detachment of the retina from the choroid. In effect, the laser beam burns together some cells of the retina and of the choroid and so the retina is, as it were, welded on to the surface to which it should adhere. The area affected is
very minute, and as the weld is effected in perhaps
1/1000th of a second no general anaesthetic is
needed, and no pain whatever is felt.

Susan: That sounds marvellous. Anything else?
Giles: Well, there is one interesting point. In spite of
everything it can do, the pulse from the largest
laser ever made doesn't contain enough energy to
boil a kettle for a cup of tea.

Susan: Is that some sort of a hint?
Giles: It did occur to me that, among your other talents,
you can boil a kettle and make a cup of tea.

Susan: Well, since you've been so patient with me, Giles,
I'll make you some. In fact, I'll even turn on the
television for you again.

Giles: Thanks.

Adopted from B.C. Brookes (ed) 1987, Scientifically Speaking BBC.P.P. 48-100
EXERCISES

Exercises A :
State whether the following are true or false. Correct the false statements :
1. The letters of the word laser come from 'microwave amplified stimulated emission of radiation.
2. A laser can not drill holes in hard jewels.
3. The Laser is a very useful tool for the sealing of tears in the retina of the eye which might lead to the detachment of the retina from the choroid.
4. The Laser can be used for the treatment of some eye diseases without any control of the dosage of light energy.

Exercise B :
Write out the following paragraph, supplying a, an or the where necessary ?

By very careful control of _________ dosage light energy flash of _________ Laser beam _________ surgeon can perform operations on _________ human eye which are much more difficult to do than by other means, for example, in _________ case of damage to _________ retina.

Exercise C :

(a) Derive nouns from the following
anaesthetic, difficult, different, educational

(b) Write the verbs of the following :
Penetration, emission, interior, operation, dosage.
Exercise D:

Combine the following into a simple sentence containing a relative clause beginning with a preposition - which:

1. The ear has a central part, the vestibule. From the vestibule three canals and the cochlea are given off.
2. The muscle is known as the mylo-hyoid. The hyoid bone is connected to the mandible by the muscle.
3. The cranium is a large, bony case. The brain is protected by this large, bony case.
4. The capsule of a lymph node is made up of fibrous tissue.
5. There are variations in the temperature, pressure and humidity of the air. The laser beam passes cause variations in the wave length.

Exercise E:

There are two rhetorical functions utilized in the dialogue, mainly definition and description. State how laser is defined, then describe how the laser is used in medical ophthalmology.

Exercise F:

Prepare some notes on one of the following for oral presentation:
Laser in industry. The treatment of the Retina by Laser.

Exercise G:

Translate the paragraph that starts with: By very . . . . . . . . to . . . . . . . . the retina; into Arabic.
4. Hypothyroidism

Intern: Now, Mr. Silver, let's continue. About how many steps can you climb before becoming short of breath?

Patient: I guess around 30 to 40. Then I don't actually get short of breath, but I get that dull pain in my chest.

Intern: How many pillows do you sleep on?

Patient: One.

Intern: How many times a night do you have to get up to urinate?

Patient: Sometimes once a night, and at other times I don't have to get up at all.

Intern: Have you been sweating as much as you usually do?

Patient: No, I've hardly been sweating at all.

Intern: It's been quite cold recently. How has that affected you?

Patient: This has been the worst winter! I can't stand cold weather at all. There's something else, Doctor. I don't feel like doing anything. Doing any little thing seems to take all the strength I have.

Intern: Have your bowels been moving all right?

Patient: They were, up to about two months ago. Then I became constipated and have had to use a laxative.

Intern: All right, Mr. Silver. Would you please get undressed now? I'll be back in five minutes to examine you.

Resident: What does the patient have?
Intern: Well, from the history and physical, I think it's a case of hypothyroidism.

Resident: Why don't you tell me something about him?

Intern: Mr. Silver is a 51-year old man who was apparently in good health up to six weeks prior to being seen in the clinic. His chief complaint is a feeling of tiredness and weakness. He has also noted a twenty-pound weight gain and a substernal aching pain related to activity. He reports no PND, orthopnea, dyspnea on exertion, or significant nocturia. He has hardly been sweating at all, complains of constipation over the past two months, and has had a recent deepening of his voice and onset of cold intolerance. The hair appears thin and feels coarse. The nails are thin and brittle, and there also appears to be thinning of the outer halves of the eyebrows. The mucous membranes appear pale. The chest is clear. The PMI is at the sixth interspace, left anterior axillary line. A2 is greater than P2. The rate is slow, but the rhythm is regular, and there are no murmurs. There is a delay in the return of the deep tendon reflexes.

Resident: What kind of lab studies do you propose to do?

Intern: I believe we can make the diagnosis by checking his T4 and drawing a thyroid-stimulating hormone and thyroid antibodies. We should also obtain a CBC, urinalysis, routine chemistries, chest x-rays, and EKG.
Resident: Let's talk about this thyroid case. If there is an anemia, what kind would you expect?

Intern: A macrocytic anemia.

Resident: What about giving myxedematous patients opiates?

Intern: I wouldn't know about that, I imagine it wouldn't be too harmful.

Resident: They are extremely sensitive to them and may die from average doses. What are the complications in this disease?

Intern: They are mainly cardiac in nature. Furthermore, myocardial infarction or arrhythmias may develop from too vigorous therapy.

Resident: That's correct. How would you start therapy on him? That is, when the results are back? His condition doesn't seem extremely acute.

Intern: I'd start off with 25 mcg of Synthroid (levothyroxine) daily and increase the dose by 25 mcg weekly up to a total dose of 0.1 to 0.2 mg per day. This should be continued until the signs of hypothyroidism vanish.

Resident: I would also get serial T₄'s and TSH's to gauge his response. You can get those lab tests ordered and see the patient next week.

Intern: Fine.

A few minutes later:
Mr. Silver, it seems that your thyroid gland is not as active as it should be. There are some tests you will have to get done, and we'll see you back in one week. At that time, we'll start you on medication that should make you feel a lot better.
EXERCISES

Exercise A:

(A) Define the following:

Hypothyroidism, Nocturia, Anemia, EKG

(B) The function of a tissue or organ can be stated in the following ways:

(i) The function of X is to + verb.
   Example: The function of the heart is to pump blood.

(ii) X is concerned with-ing form of verb.
    Example: The heart is concerned with pumping blood.

(iii) X acts as noun
     Example: The heart acts as a pumping-machine.

Now use the above models to state the function of the thyroid:

(i) The function of the thyroid . . . . . . . . . . . .

(ii)

(iii)

Exercise B:

Fill in the blanks by choosing the correct form, active or passive, of the verb in brackets at the end of each sentence:

1. Mucous membrane . . . . the cavity of the middle ear. (Line).

2. The blood . . oxygen round the body. (carry).

3. Mr. Silver is a 51-year old man who was apparently in good health up to six weeks prior to . . . . . in the clinic. (be+see).
Exercise C:

Form questions from the following sentences by using how many, how, what, why:

1. His chief complaint is a feeling of tiredness and weakness.
2. We would start therapy on him slowly.
3. The patient gets up so many times a night to urinate.
4. He must be admitted to the hospital because his wound is serious.

Exercise D:

Suggest other ways to express "request" besides the one used in the dialogue:

Example: (1) Would you please get undressed now?
(2) Would you mind ............
(3) I wonder if .............

Exercise E:

Fill in the following table with the appropriate information:

<table>
<thead>
<tr>
<th>Verb</th>
<th>Noun</th>
<th>Adjective</th>
<th>Adverb</th>
</tr>
</thead>
<tbody>
<tr>
<td>exertion</td>
<td>.......</td>
<td>.........</td>
<td>.......</td>
</tr>
<tr>
<td>Strengthen</td>
<td>.......</td>
<td>.........</td>
<td>.......</td>
</tr>
<tr>
<td>.......</td>
<td>.......</td>
<td>weak</td>
<td>.......</td>
</tr>
</tbody>
</table>

Exercise F:

Prepare a dialogue between a patient and a doctor for oral presentation on one of the following:

Anemia, dyspnea, thyroxine
Exercise G:

Translate from line 28 to 45 into Arabic using a medical dictionary.

Exercise H:

Use your dictionary to write the following phonetically:

rate / reit /
rhythm
dyspnea
Hypothyroidism
anemia
Constipated.
Resident: You say you have a new case?

Intern: Yes, A Mrs. Kelly, She's 50 years old and came in because she was told her blood pressure is elevated. She has no history of headaches or dizziness. Over the past two weeks she has had blurred vision. She does not wear glasses, nor has she previously experienced this condition. Sometimes she has dyspnea on exertion. There is no history of chest pain, PND, orthopnea, or ankle edema. About five years ago she was treated for a kidney infection. Since that time she has had multiple sporadic episodes of chills, fever, bilateral costovertebral angle tenderness, and burning on urination, the most recent episode being one week ago. Her father died of a stroke at 68, and her younger brother has been treated for hypertension for the past seven years.

Resident: Has the patient had any steroid therapy recently?

Intern: No. she has not.

Resident: Were there any significant physical findings?

Intern: Yes. To start with, Mrs. Kelly is quite obese, as you will see. Her BP was 160/100, right arm, sitting, and 158/102, left arm, sitting. The BP's reclining and standing, you can see on the chart. Pressures in the lower extremities were almost the same as those in the upper extremities. Her pulse is 80 and regular.
Respiration is sixteen per minute and regular. Temperature is 98.8 degrees. She is quite calm, in no acute distress, well-oriented to time, place, and person, and most cooperative. She has bilateral grade one retinopathy. Her neck veins are not distended. Her points of maximum impulse (PMI) is in the sixty interspace in the left mid-clavicular line. The heart was percussed to this area on the left also. $A_2$ is markedly accentuated. There are no murmurs or gallops. She has bilateral costovertebral angle tenderness. Her liver is not enlarged, and she has no ankle edema. Her kidneys are not palpable, and there are no abdominal vascular bruits.

Resident: Good work. Be sure to tell her the importance of keeping her follow-up appointments.

Intern: Dr. Yamada, I've seen Mrs. Kelly three times now. Her diastolic pressure has been just over 100 on each visit. She's totally asymptomatic but has a strong family history of hypertension. On physical exam she's moderately obese. There is some AV nicking on funduscopic exam, but no hemorrhages or exudates. Her chest is clear, her heart is not enlarged, and the heart sounds are normal. There is no hepatomegaly or pedal edema, and her neurological exam is normal.

Attending: How about her laboratory reports?

Intern: The BUN and creatinine were normal, and her potassium
was 4.3. There were no abnormalities on urinalysis, and her chest x-ray and cardiogram were also completely normal.

Attending: What's your impression?

Intern: Well. I believe that she has essential hypertension. There is a very strong family history, and nothing in the patient's history or physical exam would lead me to think otherwise. She's had a couple of kidney infections, but her renal function is normal.

Attending: Good, I agree with you. What is your plan for this patient?

Intern: I'm going to treat her initially with dietary management and see what results I can get with that approach.

Attending: What if it doesn't work?

Intern: Well, then I would add a second drug—either a beta blocker such as Inderal or a peripheral vasodilator like hydralazine.

Attending: Before I did that, I would check for noncompliance. Most hypertensive regimens fail because the patients don't take the prescribed medication. Proper patient education can help to alleviate the problem.

EXERCISES

Exercise A:

Answer the following questions briefly:

1. What is BP?
2. What are the symptoms of hypertension?
3. What is the name of the instrument which is used to measure blood pressure?
4. If the systolic pressure reads 150 when measuring the blood pressure of a 25 year old patient, is it a mark of hypertension without considering the diastolic pressure? Explain?

Exercise B:

Negation is a technique used to change the meaning of the sentences to mean the opposite. Now the persons involved in the dialogue, namely the Resident & the Intern, used two ways to negating their sentences, what are they?

Sample sentences:

(1) Mrs. Kelly does not wear glasses.
(2) There is no history of chest pain, PND or ankle edema.

Exercise C:

Choose the most appropriate verb within the brackets:

(1) Since that time Mrs. Kelly ________ multiple sporadic episodes of chills. (had, had had, has had).
(2) Her pulse _______ 80 and regular (is, had, has).

(3) Most hypertensive regimens _______ because they do not take the prescribed medication. (failed, was failed; fail).

Exercise D:

(A) Form nouns from the following:

respire, press, significant, prescribe, tender

(B) Form adjectives from the following nouns:

Significance, importance, cystole, diastole.

Exercise E:

Combine the following sentences by using and, but, neither, nor.

(1) Here kidneys are not palpable.

(2) There are no abdominal vascular bruits.

(3) She's had a couple of kidney infections.

(4) Her renal function is normal.

(5) She does not wear glasses.

(6) She has not previously experienced this condition.

Exercise F:

(A) Transfer in your language from line 41 to 49.

(B) Prepare for oral presentation a dialogue between a patient and a doctor on one of the following:

Renal colic, Syciorosis, Bronchitis.
Exercise G:

Complete the diagram with the information needed.

Symptoms of hypertension

- Dizziness
- [Blank]
- [Blank]
6. SURGERY

The most familiar and dramatic medical speciality is surgery. Nearly everyone has seen pictures of an operating room or has known someone who has had an operation. The words scalpel and forceps are familiar to most people.

People have tried to cure medical problems by cutting into the body ever since ancient times. Surgical operations are depicted on the tombs of the Egyptian pharaohs, dating from 3000 B.C. These early operations were painful and hazardous. A patient whose leg needed to be amputated did not have the benefit of an anesthetic drug to ease the pain. Alcohol was often used to dull the pain somewhat. And once the leg had been removed, the patient risked infection because the use of antiseptics was unknown.

Today this has all changed. Operations are now performed under sterile conditions. A variety of anesthetic drugs are available to reduce the pain. Great care is taken after each operation to avoid infection. In addition, the hospital stay has been reduced to a week or less for most operations.

During this century in particular, major advances have been made. Operations are now performed that had not even been imagined fifty years ago. The heart can be opened and repaired in open heart surgery. Clogged blood vessels can be cleaned out or replaced. Kidneys can be transplanted from one person to
another. A lung or part of the stomach can be removed without impairing the patient's ability to lead a normal life.

Most operations are performed by surgeons who specialize in one area of surgery. An orthopedic surgeon, for example, repairs broken bones while a neurosurgeon handles cases involving malfunctioning nerves. A plastic surgeon repairs and replaces limbs, features, or organs while a thoracic surgeon operates on patients with chest and respiratory ailments. There are also heart surgeons and brain surgeons, among others.

Most patients who receive surgical treatment have been referred to the surgeon by their own physician. He has diagnosed a problem which he feels can best be corrected by an operation and suggests that the patient seek the advice of a surgeon. The surgeon may not agree with the physician, however. Surgeons themselves often disagree about the practicality of performing an operation. Some advise surgery at the first sign of a problem while others wait until a patient manifests severe discomfort. Frequently a surgeon will perform exploratory surgery to learn more about the patient's problem before undertaking actual corrective surgery.

Once the decision has been made to perform an operation, a trained anesthetist is called in. Anesthesia, a state of insensibility, is produced by an anesthetic drug. The drug is administered either locally to reduce feeling in the area of the operation or generally to put the patient to sleep. These drugs
cause the muscles to relax, making it easier for the surgeon to operate, as well as rendering the patient insensitive to pain.

Before the advent of modern anesthetic methods, attempts were made to relieve pain by giving substances such as henbane, poppy, mandragora and hemp. Hypnotism was also used. Then in 1842, ether was used for the first time. Nitrous oxide, the so-called "laughing gas", was discovered in 1844, chloroform in 1847, and ethyl chloride in 1894. Since that time, many new drugs have been discovered which are safer and more pleasant.

Although it is not usually difficult to produce anesthesia in patients, the skills of a carefully trained anesthetist are necessary, for anesthetic drugs can be dangerous. The anesthetist must prepare the patient with a series of preparatory drugs. He or she must also keep careful watch of the patient's vital signs throughout the operation to assure that they remain as close to normal as possible.

A patient about to undergo surgery is counseled not to eat or drink anything for twelve hours prior to the operation, to make it easier for the surgeon to operate but particularly to avoid complications with the anesthesia. A patient is often given an enema just before the operation to empty the colon of waste material. Usually a urinary catheter is used as well to void the bladder. The area to be operated on is routinely shaved.

The readied patient is then wheeled into the operating room and placed on the operating table. A blood pressure cuff is attached
to one arm just above the elbow to measure the blood pressure at regular intervals and an intravenous (iv) line attached to a catheter is inserted into the other arm. Intravenous solution given in this fashion helps maintain the body fluids and also provides a way to administer essential drugs during the operation. A mask is often placed over the patient's mouth and nose, or a tube may be placed in the wind pipe (trachea) through which a general anesthetic and oxygen can be given. Anesthetic drugs can also be administered directly with a hypodermic needle. Donated blood of the same blood type is usually on hand from the "blood bank" in case a transfusion becomes necessary.

The surgeon on duty is assisted by a large staff. There is usually an assistant surgeon or two who are often interns or residents. The patient's physician may also be present. The chief operating room nurse supervises the operating room nursing staff. These include a nurse in charge of surgical supply; a scrub or suture nurse who assists with the equipment; a circulating or chase nurse who is not dressed in a sterile gown and can be called upon for a variety of errands; and an orderly to help move the patient. The anesthetist is also in the room.

The drama of any operation, whether a simple appendectomy or elaborate brain surgery, is heightened by the array of specialized equipment used. In addition to the special operating table, there are high intensity lights and the anesthesia
machine. A main instrument table is laden with a large collection of scalpels, forceps, suture needles and other sterilized instruments. There are suction machines to suck out excess blood and other fluids from the operating area. Bottles of blood and dextrose are on hand. There are wash basins and refuse bins. A special sponge stand holds the used sponges; these cotton pads used for mopping blood are always counted before the patient is sewn up to assure that none have been left inside. The instruments are also counted. Finally, there is a clock.

An operation may be completed in less than an hour or it may last for several hours. Once it is completed and the patient has been returned to the ward, careful post-operative care is begun. The wound is carefully bandaged and the dressings are changed frequently. The entire room is kept as sterile as possible through the use of antiseptics. As a result of these measures, the complications often associated with surgery in the past have largely been eliminated. Pneumonia is halted by antibiotics and respiratory physical therapy. Embolism, in which a blood clot forms in the patient's limb and breaks off to travel to the lungs, has been reduced by early post-operative ambulation. And shock, which used to be the greatest cause of death, is held to a minimum by the use of blood transfusions and plasma IV's.

Despite these improvements, surgery is not undertaken lightly. There are still dangers and the costs are high. The surgeon's
fee must be paid. The hospital charges for room and board, drugs, nursing care, and blood transfusions, Laboratory work and x-rays cost extra and there is a separate, high fee for the use of the operating room. Fortunately, many patients have health insurance to cover these costs. Without this insurance, a major operation, easily costing several thousand dollars, might ruin a family financially.

Another risk associated with surgery is malpractice. A patient trusts his surgeon to be competent and conscientious. He presumes he will do everything possible to make the operation a success. If a surgeon is responsible for avoidable mistakes, he can be sued for malpractice. The damages awarded in these suits are usually very high, enough to ruin a surgeon. For this reason, surgeons protect themselves with malpractice insurance.

Other measures are taken as well to assure high standards of surgery. In the United States, the American College of Surgeons reviews candidates for membership through its local boards and chapters. Only surgeons with impeccable records, within the bounds of human fallibility, are admitted. This group works in conjunction with the American Commission for the Accreditation of Hospitals to ensure safety and high standards. All of these efforts have changed the operating room from the crude and frightening setting of earlier days to a wetting in which the miracles of modern science can be performed with a high record of success.

EXERCISES

Exercise A  Further comprehension.

Answer the questions as briefly as possible:

1. Why were early operations so unpleasant and so dangerous?
2. What scientific discoveries revolutionized the field of surgery?
3. What is the difference between exploratory and corrective surgery?
4. An operation requires a variety of equipment. Which staff member is responsible for this equipment during the operation?
5. How is a shock reduced?

Exercise B

Complete the following sentences by filling in the blank spaces with the appropriate word(s):

1. A ___________ is a doctor who performs operations.
2. To avoid infection, operations are performed in very clean or __________ surroundings.
3. ___________ which used to be the greatest cause of death, is held to a minimum by the use of blood _______ and plasma IV's.
4. Most operations are performed by ___________ who specialize in one ___________ of surgery.

Exercise C

State whether following are true or false. Correct the false statements:
1. Less care should be taken about surgical instruments when operating on a patient.
2. Anesthesia can be done by any doctor.
3. A patient should avoid having a meal before the surgery.
4. Most patients who receive surgical treatment have been referred to the surgeon by their own ophthalmologists.

Exercise D

I. Change into passive:
   1. These drugs cause the muscle to relax.
   2. A physician may diagnose a problem.
   3. An orthopaedic surgeon repairs broken bones.

II. Change into active:
   1. Operations are performed by surgeons.
   2. The readied patient is wheeled into the operating room.
   3. Great care is taken after each operation to avoid infection.

Exercise E:
The passage develops in a chronological order the introduction of substances used as anesthetics. Name those anesthetic drugs stating where they were used.

Exercise F:
Write a story which you have heard about malpractice.
Exercise G:
Make into complex sentences:
An orthopedic surgeon repairs broken bones.
A neurosurgeon handles cases involving malfunctioning nerves.
A physician has diagnosed a problem.
He feels the problem can best be corrected by an operation.
It is not usually difficult to produce anesthesia in patients.
The skills of a carefully trained anesthetist are necessary.

Exercise H:
Define the following terms:
Surgeon, Vital Signs, Anesthesia, Malpractice.

Exercise I:
Translate into Arabic the paragraph which begins with:
Most operations are performed by surgeons who specialize in one area of study.................There are also heart surgeons and brain.
7. The Nervous System

The basic unit of the nervous system is the neurone, or nerve cell. It consists of a cell body and its processes. Each neurone has two types of process: a number of short, freely branching fibres called dendrites, and a single process called the axon, which may or may not give off branches along its course. The dendrites convey impulses to the cell body; the axon which is the main conducting fibre, conveys impulses away from the cell body. The axon varies in length in different kinds of neurone. In a motor neurone it can be very long, running, for example, from a cell body in the spinal cord to a muscle in the foot. Axons of the internuncial neurones, which provide links between other neurones, are often short and difficult to distinguish from the dendrites.

An unactivated nerve fibre maintains a state of chemical stability with concentrations of potassium inside and outside the lining membrane in a ratio of 30:1. Thus the nerve fibre at rest is electrically charged. A nerve impulse is a wave of depolarization created by a chemical imbalance. Sodium passes through the membrane, releasing potassium. The depolarization of any part of the nerve cell causes the depolarization of the next segment, and so on to the end of the fibre. The end of a nerve fibre is not structurally joined to the next cell, but the small gap between them can be bridged chemically. This
functional junction is known as a synapse. Not all the chemicals which act as transmitters are known but among the most important are acetyl choline and noradrenaline. Once the synapse has been made, the chemicals are rapidly destroyed by enzymes. The nerve fibre itself charges within millisecond.

The brain and spine together form the central nervous system.

Arising from the central nervous system and supplying all parts of the body are the peripheral nerves, commonly referred to simply as nerves. A nerve is a cord-like structure, usually containing bundles of conducting fibres, which may be sensory or motor.

Twelve pairs of nerves arise from the brain and thirty-one pairs of nerves arise from the spine. These are known as the cranial nerves and the spinal nerves respectively. Of the twelve cranial nerves, five contain both sensory and motor fibres. The most important of these is the vagus, or tenth nerve, which supplies the heart, most of the digestive organs, the pharynx and the larynx. Of the remaining seven parts of nerves, four contain motor fibres only, and three are entirely sensory. The fourth and sixth nerves, for example, control the movement of the eyeball, and the first nerve records smells.

In contrast, all the spinal nerves contain both sensory and motor fibres. There are eight pairs of cervical nerves, twelve thoracic, five lumbar, five sacral, and one coccygeal. The
spinal nerves divide into two branches. The posterior branches serve the muscles and skin of the back of their own region. The anterior branches of the thoracic nerves circle the thorax, supplying the intercostal muscles and the skin. All other anterior branches form plexuses, or networks of nerve fibres, from which nerves pass out to supply the cervical and pelvic regions and the upper and lower limbs. Thus each limb nerve contains fibres from several spinal nerves. The sciatic nerve, which emerges from the sacral plexus to serve the back of the thigh and the leg, contains fibres from five spinal nerves: the fourth and fifth lumbar nerves, and the first, second and third sacral nerves.

Adopted from J. Maclean (1975) English in Basic Medical Science O.U.P.
EXERCISES

Exercise A: Contextual reference.
Write out the following sentences, and complete them after reading the passage:
1. 'It' in line 2 refers to .........
2. 'Its' in line 2 refers to .........
3. 'these' in line 36 refers to .........
4. 'these' in line 39 refers to .........

Exercise B:
Rewrite the following sentences, replacing the words in dark print with expressions from the reading passage:
1. About 1,00,000 sensory fibres carry impulses from the eye to the brain.
2. A synapse may be formed with more than one internuncial neurone.
3. The vagus includes both sensory and motor fibres.
4. The sciatic nerve serves the back of the thigh and the leg.

Exercise C:
Correct the following Statements:
1. The axon is a freely branching fibre.
2. A nerve impulse is a chemical imbalance.
3. Transmitters are not destroyed by enzymes.
4. The peripheral nerves arise from the brain and the spine.
Exercise D:

Consider the following examples:

The sciatic nerve contains fibres from the fourth and fifth lumbar nerves, and the first, second and third sacral nerves. This list takes the form: a + b and c, d + e. It may be presented diagrammatically:

```
the sciatic nerve
   /| |
  / | |
/  | |
4th lumbar nerve 5th lumbar nerve 1st sacral nerve 2nd sacral nerve 3rd sacral nerve
```

(a) Convert the following diagrams into sentence form. The spinal nerves are given their usual notation (i.e. C=Cervical, Th = thoracic, L=Lumbar, and S=Sacral.

1. radial nerve
   /|
   | |
  / |
C5  C6  C7  C8

2. median nerve
   /|
   | |
  / |
C6  C7  C8

Th 1

Th 1
(b) Write out the following lists in sentence form:

1. The kidney consists of
   i. the pelvis
   ii. the (a) medulla
      (b) cortex
   iii. and outer capsule of fibrous tissue.

2. In the female, the pelvic floor supports:
   i. the bladder
   ii. the (a) uterus
      (b) vagina
   iii. the rectum.

Exercise E:

Change the time clauses in the following sentences to short-form time clauses, using the -ing or the -ed form. Notice that as soon as should be changed to on.

1. The blood distributes heat evenly while it circulates round the body.

2. Before it ossifies, the sternum is a bar of hyaline cartilage.

3. When the rectum is viewed from the front, it is seen to have three lateral flexures.

4. As soon as it passes through the diaphragm, the thoracic duct enters the posterior mediastinum.
Exercise F:

Look at the following example:

(a) The vocal cords stretch across the cavity of the larynx.

(b) Stretching across the cavity of the larynx are the vocal cords.

Invert the following sentences:

1. The sciatic nerve is directed downwards from the sacral plexus.

2. A mucous membrane lines the eyelids.

3. The pleura is reflected back from the lung surface.

4. The darker red cortex surrounds the medulla.

Exercise G: oral Presentation.

Prepare one of the following topics for oral presentation:

The digestive system, the reproductive system.

Exercise H: Translation

Translate into Arabic the paragraph which starts with line 1 and ends with . . . its course, in line 5.
During the 8th-12th centuries, Muslims embraced the study of medicine with great interest and translated nearly all the available Greek, Persian, Syrian and Indian treatises. The Caliphs in both the West and East encouraged the search for knowledge, research and translation. Writers, scientists and scholars were highly respected and highly paid by the Caliphs.

During this period, hundreds of Muslim Scholars participated and contributed greatly to all sciences in general, and medicine in particular. Here I can only consider some of those who influenced the trend of medical thought in Europe; they are in chronological order, beginning with those of the Eastern Caliphate, then moving on to those of the Western Caliphate.

**Eastern Caliphate**

**Al-Kindi**

Abu Yusuf Yaqub ibn Ishaa Al-Kindi was known in the West as Al-Kindus. He was a physician to the court of the Caliphas Al-Mamun and Al-Mutasim in Baghdad, where he enjoyed a very high reputation as Physician, philosopher, astronomer and mathematician. He is credited with more than 200 works, including 22 in medicine, and his major work dealt with the preparation of a dosage of medicine.
Al-Razi

Abu Bakr Muhammed Ibn Zakariya Al-Razi known in the West as Rhazes, was born in Ray in Khurasan and died at the age of 82. He was a renowned physician who followed both Hippocrates and Galen in their methods and ideas; his standing was such that his contemporaries surnamed him 'The Experienced'. A great clinician, he ranks with Hippocrates as one of the original portrayers of disease, and was the first to introduce chemical preparation into the practice of medicine. His master treatises are Al-Kitab Al-Mansuri and Al-Hawi.

Kitab Al-Hawi (The Contents)

Contains 20 volumes, the largest and most important being an encyclopaedia of medicine and surgery. This work exceeds in 35 volumes 'The Canon' of Avicenna, and was one of the nine volumes which composed the whole library of the medical faculty of Paris in 1395. The nine volumes dealt with pharmacology, and were a source of therapeutic knowledge in Europe long after the Renaissance. Razi was the first to distinguish smallpox and measles in his book Al-Jodari Wa'l Hasba ('Liber de Variolis et Morbillis'), and his other master work was the book Taksim Al-Ilal ('The Division of Diseases').

He was the first physician to use animal gut as a ligature for surgical operations, and the first to recognise the reaction of the pupil to light. Razi also introduced the use of mercurial ointment, mild purgatives and of cold water for persistent
fever. His works were translated into the various languages of Europe and printed 40 times between 1498-1866 CE, and formed the main textbooks in the European Universities.

**Ibn Sina**

Abu Ali Al-Husain ibn Abdullah ibn Sina, known in the West as Avicenna, was undoubtedly the greatest physician of all time. He was regarded as the chief authority on medicine for several hundred years in Europe.

It is claimed that he mastered the contents of the Holy Quran at the age of ten, completed his studies in general sciences at the age of 18 and was appointed at that age as court physician to the Prince of Hamadan. He later fled to Isfahan, where he became court physician and lecture on medicine and physiology. At 21 he wrote an encyclopaedia for all sciences.

As a result of over-work and riotous living, Ibn Sina died young. He wrote hundreds of books, the most important being Al-Canon fi al-Tibb ('The Canon'). Used as a medical authority for a longer period than any other book, it is an encyclopaedic work of about a million words covering the entire medical knowledge of the period, ancient as well as contemporary.

Ibn Sina analysed for the first time pathological and psychological phenomena, and made accurate observations about the differential diagnosis of mediastinitis and pleurisy, the infectious nature of phthisis, skin diseases, sexual ailments
and perversions, diseases of the nervous system and transmission of diseases through water, food and soil. He was the first to write a careful description of meningitis, and to differentiate between primary and secondary meninges. He also gave a full description of the various types of diseases which cause jaundice, and differentiated between facial paralysis of central origin and that of local origin. He described apoplexy as being caused by plethora, and also described the symptoms and diagnosis of pleurisy, differentiating it clearly from pneumonia and hepatitis.

'The Canon' is divided into five major sections: the first section deals with definitions, elements, humours, temperaments and spirits, anatomy (bones, muscles, nerves, arteries and veins); diseases, their causes and symptoms; hygiene and prophylaxis; and treatment.

The second section deals with simples in alphabetical order; the third gives a description of diseases from the head downwards, including the anatomy of the organs-head, brain, nerves, eyes, ears, nose and mouth, tongue, teeth, lips and gums, throat, chest and lungs, heart, breast, oesophagus and stomach, liver, and female genital organs and general diseases. The fourth section deals with fever, prognosis and crisis; swellings and ulcers, surgery, fractures and dislocation, poisons, skin diseases and cosmetics. The fifth deals with compound drugs and therapeutics.
His work formed half the medical curricula of European universities in the later part of the 15th century, and continued to be used as a textbook until around 1650 CE in all the French and Italian Universities. His pharmacopia comprised 760 drugs.

100 Ali ibn Ali Al-Hazm, known in the West as Annafis, was born in Damascus. He spent most of his life in Cairo, where he practised medicine and became Dean of the Mansuri Hospital. He wrote several books, the most important being Al-Mujiz and Sharh Tashrih al Qanun.

105 He described the anatomy of the pulmonary vessels and the pulmonary circulation, and declared three centuries before Serventus that blood is aerated in the lungs. In his description of the anatomy of the heart, he gives the nearest description in those times of the coronary circulation, and says that Ibn Sina's statement that the blood in the right side of the heart is to nourish the heart is incorrect, because the nourishment of the heart is from the blood in the vessels that permeate the body of the heart.

Ibn Al-Haitham

115 Known in the West as Alhazem, he was an esteemed Muslim physicist and one of the greatest students of optics. He was born in Basrah (Iraq), but migrated to Egypt in the time of Caliph Al-Hakim. He was also an astronomer, mathematician and physician. He corrected the Greek misconception about the nature of vision, and taught for the first time that light does not
emanate from the eye but enters it. He also discovered that the retina was the seat of vision, and that the impressions made upon it were conveyed along the optic nerve to the brain, forming images on symmetrical portions of both retinas.

125 Western Caliphate

The eminent Muslim writers of the Western Caliphate are small in number as compared to those of the Eastern, but due to their location and the intimate contact with the Christian west, their influence on the Latin West was far reaching. Eastern Muslim writers who reached any degree of eminence date long after Rhazes and Avicenna. The most eminent were:

Abu Al Qasim Al-Zahrawi

Known in the West as Albucasis, Bucasis and Al-Zahravius. As one of the eminent Muslim surgeons in Spain, he took his name from his birthplace Al-Zahra, the famous suburb of Cordova, and was court physician to the Caliph Al-Hakam II. His fame rests chiefly on surgery—he was perhaps the greatest of all Muslim surgeons.

His principal work was an encyclopaedia of medicine and surgery entitled Al-Tasrif, which has been translated five times into Latin. It consists of two main parts, the first dealing with anatomy, physiology and dietetics, the second dealing with surgery. His surgical work translated into Latin by Gerard of Cremona, is divided into three books. The first deals with
cautery, which was extensively used in Arabia and the book is illustrated with cauteries and other appliances necessary for this purpose. The second book is devoted mostly to lithotritry, lithotomy and amputation and also ophthalmic and dental surgery; and the third book is on fractures and luxation, mentioning paralysis following fracture of the spine.

In addition he wrote about obstetrics and midwifery, described instruments used for delivery, and produced a surgical treatise containing 200 surgical instruments.

His book on surgery was the standard textbook in Europe for several centuries, and his advocacy of cautery led to the widespread use of this means of treatment throughout western Europe during the Middle Ages. He also wrote a book dealing with medical preparations obtained from minerals, plants and animals, which represent an early example of chemistry applied to the practice of medicine.

Ibn-Rushd (1126-1198 CE)

Abdul Walid Muhammed ibn-Ahmed ibn-Muhammed ibn-Rushd was known in Europe as Averroes, and was born at Cordova. He studied philosophy, law and medicine, was a friend of Avenzoor, and was the Judge of Seville, Cordova, and Morocco.

He was not only a great physician, but also a great philosopher, and his most important medical work, Kitab al-Kulliyat fi al-Tibb, was a veritable encyclopaedia of medicine. The Latin
translation of this book went through several editions in Europe, was translated into Hebrew, and deals with anatomy, physiology, pathology, diagnostics, hygiene and therapeutics. He was the first to discover immunity against smallpox if already contracted, and the first to understand the working of the retina.

Medical Schools, Universities, Teaching Institutes and Libraries.

After the liberation of Egypt, Persia, Syria and Spain, from the end of the seventh century onwards, more time and interest was given to teaching, research and translation, especially during the Abbasid period, which was the Golden Age of the Islamic Empire. Medical schools with suitable curricula, effective teaching and proper examinations were established in Cordova, Seville, Baghdad, Egypt and Damascus. The most famous and popular University was that of Cordova, which was the seat of the Western Caliphas. Cordova was known as the centre of religion, the mother of philosophers and the light of Andalusia. At the height of its glory under Islam, it was said to have contained 300 mosques, 200,000 houses, and about a million people, as well as 50 hospitals. The second in importance was the university at Seville, which was a major centre for the study of Arabic and other Eastern languages as well as for translation. The third was the University of Baghdad, with all its branches such as medicine sciences, languages,
religion and translation; next in importance was the Medical College of Damasaus and Egypt.

The Cordovan Library in Spain at one time contained more than 250,000 volumes, Tripoli Library in Lebanon, which was burnt during the Crusades, three million volumes, and the Baghdad Library more than 300,000 volumes.

Exercises:

Exercise A:
State whether the following are true or false; then correct the false ones:

1. Ibn Al-Nafis corrected the Greek misconception about the nature of vision, and taught for the first time that light does not emanate from the eye but enters it.
2. The principal work of ibn Sina was Al-Tasrif.
3. During the 8th-12th centuries hundreds of Muslim Scholars participated and contributed greatly to all sciences in general, and medicine in particular.
4. Muslim scholars during the 8th-12th centuries AD. had no influence on the trend of medical thought in Europe.

Exercise B: Compound sentence:
Combine each pair of the following sentences by using **and**.

Example:

b. It was one of the nine volumes which composed the whole Library of the medical faculty of Paris in 1395.

Kitab Al-Hawi exceeds in volumes 'The Canon' of Avicenza and was one of the nine volumes which composed the whole library of the medical faculty of Paris in 1395.

c. Al-Kindi is credited with more than 200 works, including 22 in medicine.
d. His major work dealt with the preparation of a dosage of medicine.

e. Al-Razi was the first physician to use animal gut as aligature for surgical operations.

f. He was the first to recognize the reaction of the pupil to the light.

g. The nine volumes of Kitab Al-Hawi dealt with pharmacology.

h. They were the source of therapeutic knowledge in Europe long after the Renaissance.

Exercise C:

Fill in the blanks by using who, where, which:

1. Al-Razi wrote a book called Taksim Al-Halal ________ was translated into the various languages of Europe.

2. Al-Kindi was a physician to the court of the Caliphas Al-Mamum and Al-Mutasim in Baghdad, ________ he enjoyed a very high reputation.

3. Al-Razi was a renowned physician________ followed both Hippocrates and Galen in their methods and ideas.

4. Ibn Al-Haitham discovered that the Retina was the seat of vision.

Exercise D:

Mini biographies are presented in the reading text. Use the same model to write about the life and contribution of a contemporary doctor who is known all over Iraq.
Exercise E:
Supply with the information needed to complete the diagram below:

Eastern Caliphate

- Al-Kind
- Al-Razi
- Annafis
- Al-Mansuri
- The Canon
- Retina is the seat of Vision

Western Caliphate

- Al-Tasrif
- Ibn-Rushed

Exercise F:
Prepare for oral presentation some notes on the following:
Retina and Vision, Pulmonary Circulation.

Exercise G:
Translate into Arabic the Paragraph on Ibn Al-Haitham.

Psychiatry has been described as the oldest art in medicine and the newest science. It is the oldest art because mental disorders were among the first types of illness to be recognised. The oldest prescription in existence is from ancient Egyptian medicine and calls for the exhibition of green stone as a fumigation against hysteria.

Ancient medicine, both Egyptian and Greek, considered all disease to be caused by evil spirits or demons and similar concepts continued in Europe with regard to mental disorders throughout the Middle Ages.

Hippocrates (460-377 B.C.) replaced demoniacal concepts of disease by a theory and practice of medicine based on observation and natural causes. Hippocrates regarded mental illnesses in much the same light as he did physical illnesses. He considered that mentally ill patients needed to be investigated to discover the causes of illness in order that these should be dealt with as effectively as possible.

The theories of disease causation of Hippocrates and Galen regarded disease to be due to a disturbance in the body of the distribution of the four humours—black bile, yellow bile, blood and phlegm. We still pay reference to these humoral theories by the use of the terms melancholia, sanguine, choleric and phlegmatic.
Despite the enlightened teachings of Hippocrates and Galen, beliefs that mental illnesses were due to possession by demons persisted throughout the Middle Ages and were responsible for cruelty to the mentally ill, who were flogged and ill-treated in order to drive out demons and evil spirits. Witch hunting occurred on a large scale in the fifteenth century and many supposed witches were put to death because they were believed to be possessed by evil spirits.

Paracelsus, in the fifteenth century, put forward the view that health and illness were controlled by astral bodies such as the stars and the moon. The term lunacy is a relic of these theories which alleged that mentally ill people are affected by the moon.

From this developed the animal magnetism and Mesmer believed that ill health was due to a disturbance in the body of a fluid which was called animal magnetism.

Patients treated on the basis of the animal magnetism theory often went into a trance-like state, which was in fact identical with what we now know to be hypnosis. Hypnosis was later used by Charcot and others therapeutically. Charcot believed that hypnosis and suggestion were the keys to psychiatric treatment.

Freud started using hypnosis to treat psychiatric patients but later dispensed with it, as he found it was unnecessary and
often created undesirable dependence on the part of the patient. He replaced it by his method of free association. This became the foundation of psychoanalysis, which proved to have far-reaching influences on thinking and attitudes as well as providing a method of treatment for certain psychiatric disorders and laid the basis of modern dynamic psychiatry.

The organic or biological trend paid due attention to physical factors in mental illness and initiated somatic treatment methods, starting in the eighteenth century with Morgagni who held the view that mental illness was an organic disease. This concept was refined by various other neuropsychiatrists, laying the foundation for a biological, constitutional and organic type of psychiatry.

Herbal remedies and concoctions were used for the treatment of mental disorder by Hippocrates and were described by Burton in his *Anatomy of Melancholy*. Chloral hydrate was introduced into medicine in 1869 and Fisher synthesised the first barbiturate in 1903.

The drug treatment of mental illness has developed with remarkable rapidity during the past decade or so. New drugs with potent actions on the higher functions of the central nervous system have been discovered, which have transformed psychiatric treatment.

The history of progress in medicine generally during the past 200 years shows that the pattern of progress develops from
clinical descriptions of symptoms and signs of the disease, description of morbid anatomy and the possibility of treatment and prevention, depending on the discovery of the relevant causal factors and the extent to which these could be modified by medical intervention.

This mode of progress has also applied to psychiatry but advances also involve social administrative and legal aspects and changes in community and hospital care for the mentally ill and mentally subnormal.

Adopted from Morsthold and Mørsthold (1975) Practice in Medical English Longman.
Exercises

Exercise A:
State whether the following are true or false:

1. Mental disorders were not recognised until recent times.
2. Hyppocrates and Galen were responsible for the demoniacal theory of a mental disease.
3. In recent years methods of Psychiatric treatment have taken into consideration organic factors.
4. Galen believed that hypnosis and suggestion were the keys to psychiatric treatment.
5. Paracelsus in the 19th century put forward the view that health and illness were controlled by astral bodies such as the stars and the moon.

Exercise B:
The writer has presented his material in a chronological order. Trace the progress of Psychiatry showing this chronological order and the development in the treatment of the disease:

<table>
<thead>
<tr>
<th>Ancient time (Egyptians)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment green stone</td>
</tr>
</tbody>
</table>
Exercise C:

Explain briefly the following terms and expressions:

Exercise D:

Change into passive voice:
1. Many doctors have described psychiatry as the oldest art in medicine and the newest science.
2. Later Charcot and others used Hypnosis therapeutically.
3. Various other neuropsychiatrists refined the concept.

Now read the passage again making two lists of passive and active sentences.

Exercise E:

Answer the following questions. Write statements of reason:
1. Why has psychiatry been described as the oldest and the newest science?
2. Why do you think the Egyptian and the Greek ascribe the causes of all diseases to evil spirits?
3. Why did Freud dispense with Hypnosis as the key to Psychiatric treatment?

Exercise F:

(A) The noun forms of the following verbs are frequently used in medical writing:
prescribe, cause, replace, investigate, disturb, distribute, persist, depend, provide, observe.
Complete each of these sentences with the noun or verb form, as appropriate, as one of the words in the list:

a) If the symptoms ________: the doctor said, 'come and see me again'.
b) The patient developed a ________ on barbiturates?
c) The patient was admitted to hospital and kept under ________.
d) The nurses were instructed not to ________ the patient, but to let him sleep.
e) A survey has been carried out of the ________ of mental disease among different sections of the populations.
f) The doctor wrote out a ________ and gave it to the patient.
g) Laboratory ________ confirmed the diagnosis.
h) Adequate ________ has been made in the hospital for the treatment of mentally ill patient.
i) In recent years the treatment of mental illness by drugs has largely ________ other forms of treatment.

(B) Rephrase the following by using the words in dark print as adjectives:

e.g. a theory of medicine ______ a medical theory.

1. a state of hypnosis.
2. a concept of psychiatry.
3. a principle of biology
4. a condition of the organs
Rewrite these sentences, making any necessary changes, using the adjective form of the words in dark print:

5. Nausea is a symptom of many diseases.

6. There is no method in your approach to your patterns.
   (You are not . . . . .)

7. Barbituates have considerable value as a form of therapy.

Exercise (i):

Prepare a dialogue between a nurse and a doctor on hysteria. After presenting it to the class orally, translate it into Arabic.
10. Age and Infertility

Measuring the effect of age on fertility is difficult because so many people use artificial methods to control fertility. Data from Western communities employing no artificial methods, such as the Hutterites of North America, show a gradual decline in fertility with age, which becomes steeper after 40 and approaches zero by 49. Increasing age of the man, reduced coital frequency, and increasing duration of marriage may all influence this decline, but data from a community where late marriage was common showed a similar pattern: 16% of women married between 30 and 34 remained childless, as did 31% of those marrying between 35 and 39 and 69% of those marrying over 40.

These studies may not be relevant to women in contemporary society, where contraceptive practices allow early sexual activity with the option of delaying pregnancy for up to 20 years. During this time pelvic infection may reduce the chances of a future planned pregnancy. Tubal disease is not, however, an important cause of infertility, and there is no evidence that the prolonged use of oral contraception is detrimental to fertility. Indeed, it may protect against certain disorders associated with rising age and nulliparity, such as uterine fibroids. Of more concern is the idea that fecundity is declining in both men and women because of adverse environmental factors. These would predominantly affect older women because
of the prolonged exposure of their oocytes to such influences, but deteriorations in semen characteristics have also been reported. The study by Johnson et al is reassuring because it does not show a rise in involuntary infertility with age, although no information is available about women who may deliberately defer child-bearing until after 35.

Any adverse effect of aging would increase the number of couples presenting with "unexplained" infertility, and analysis of conception rates among couples thus classified confirms that the prognosis is inversely related to the age of the women at presentation. There is no evidence, however, that couples with unexplained infertility are any older at presentation than those in other diagnostic groups, and age did not significantly affect prognosis for couples in these other categories.

In such studies it is difficult to control for an effect of aging in the man. Semen collected from men of proved fertility undergoing routine analysis before vasectomy or for screening as potential donors in artificial insemination by donor programmes shows an age related decline in sperm motility and morphological characteristics. One study controlled for male factors and coital frequency by looking at women with azoospermic husbands who were artificially inseminated: a cumulative conception rate of 73% after 12 months in women aged 30 and under fell to 63% in those between 31 and 35 and to 54% in those over 35%. Though supporting a decline in fecundity
with age, these figures do not allow for the increase in conception time that occurs with age; they are also likely to underestimate the chances of conception in all age groups because of the nature of the treatment and the use of cryopreserved semen.

There is thus considerable evidence for a decline in fecundity with age, but the reasons for this are not clear. About 80% of women between 40 and 50 who are still menstruating continue to ovulate. Data from one study on fertilisation in vitro showed that failure of implantation and early spontaneous abortion rose with age, which is compatible with the theory that reduced fecundity in older women is caused by the loss of chromosomally abnormal conceptuses rather than a defect in fertilisation itself. Another study of in vitro fertilisation showed, however, that pregnancy rates in those aged 36 to 39 were higher than in younger women, and there was no sharp decline in those over 40 (although only a few women were this old). This may support alternative theories that the reduction in fecundity with age is related to abnormal endocrine factors or to delayed fertilisation combined with reduced coital frequency. Under ideal conditions the effect of age on the chance of achieving a successful pregnancy may be less than previous studies have led us to believe.

The authors of a recent review have concluded that women who defer childbearing until their early 30s risk no more than a
biological decline in their fecundity that is no worse than that quoted in the early studies provided that they have avoided the hazards of early sexual activity. Advancing age is not a major factor in infertility and couples should not be excluded from investigation and treatment on the grounds of age alone.