THE ENGLISH ALPHABET AND BASIC PRONUNCIATION

THE ALPHABET

ABCD
EFG
HIJK
LMNOPQ
RST
UVW
XYZ

Vowels:	A E I O U
Rhyming:	A J K
	B C D E G P T V
	Q U W
	I Y
[e]:	F L M N S X
Distinct:	H O R Z

A	ache	hepatitis A virus, coenzyme A
B	beat	hepatitis B virus, B-cells
C	sequence	C-reactive protein, prostaglandin C
D	deviation	D-glyceraldehyde
E	equal	e antigen, ED_{50}
F	effort	F and R, F factor
G	gene	G cells, GI tract
H	aitch-bone	haemoglobin H, H_2-antagonist
I	iris	I band, ^{131}I-labelled
J	janiceps	60 J, J acid
K	calix	K scale, constant k
L	elbow	L.O.S. pressure, L-glyceraldehyde, LD_{50}
M	embryo	M mode, M-component hypergammaglobulinaemia
N	encephalon	n possibilities
O	opening	"O" sign
P	penis	p-aminobenzoate, P wave, substance P
Q	cutis	Q band, Q fever, Q wave
R	artery	R wave, Rh factor
S	essence	haemoglobin S
T	teeth	Student's t-test, T wave, T-lymphocytes
U	uvula	U-fibres
V	venous	V factor, v-body, VA test
W	double u	WHO class
X	extraction	X-chromosome, x-rays, x axis, XXX syndrome
Y	widespread	Y ligament, y axis, Y-chromosome
Z	zedoary	Z line, ZE syndrome

STRONG AND WEAK PRONUNCIATION

Forty-three very important words in English have both a strong and weak pronunciation. The weak pronunciation is much more common.

	WEAK	STRONG
A	It's a pen	A very important person!
AN	It's an umbrella	An unusual idea!
AM	I am an Englishman	Yes, I am.
AS	as good as gold	Do as you like!
AT	at six o'clock	What is he looking at?
ARE	We are working	Yes, we are.
AND	fish and chips	You and I together!
BE	It must be late	Where can he be?
BEEN	She's been	Where have you been?!
BUT	but I can't	That's right, but ...!
CAN	I can swim	Yes, he can.
COULD	He could come	Yes, I could.
DO	Where do you live?	What can he do?
DOES	Does he speak French?	Yes, he does.
FOR	for half an hour	What for?!
FROM	from Rome to London	Where does he come from?
HAD	She had finished	Yes, they had.
HAS	Has he finished?	Yes, she has.
HAVE	Have we seen it?	Yes, I have.
HER	her brother	Give it to her!
HIM	Show it him.	Give it to him!
INTO	to go into the room	Into what?!
MUCH	He's much better	How much?!
MUST	He must be out	Yes, you must.
OF	a bottle of beer	Of course!
OR	five or six weeks	You can have tea or coffee
SHALL	I shall do it	Yes, I shall.
SHOULD	I should like to	Yes, you should.
SO	not so bad	So, what did you do?
SOME	He bought some sugar	I like some of them.
SUCH	It's such a pity	No such luck!
TO	to go to Milan	Where to?
THAN	bigger than me	Who is he bigger than?
THAT	He knows that he can't	I know that.
THE	the rich and the poor	the expert in the field
THEM	He showed them the way	Show it to them!
US	Tell us your name	Are you looking for us?
WAS	What was he doing?	Yes, he was.
WERE	Where were we going?	Yes, we were.
WILL	He will come	Yes, it will.
WOULD	He would tell me	Yes, you would.
YOU	You never know	I want to see you!
YOUR	Bring your book	This is your book!

NUMBERS AND NUMERICAL EXPRESSIONS

1	one	1st	first	11	eleven	11th	eleventh					100(th)	one/a hundred(th)
2	two	2nd	second	12	twelve	12th	twelfth	20	twenty	20th	twentieth	200(th)	two hundred(th)
3	three	3rd	third	13	thirteen	13th	thirteenth	30	thirty	30th	thirtieth	300(th)	three hundred(th)
4	four	4th	fourth	14	fourteen	14th	fourteenth	40	forty	40th	fortieth	400(th)	four hundred(th)
5	five	5th	fifth	15	fifteen	15th	fifteenth	50	fifty	50th	fiftieth	500(th)	five hundred(th)
6	six	6th	sixth	16	sixteen	16th	sixteenth	60	sixty	60th	sixtieth	6,000(th)	six thousand(th)
7	seven	7th	seventh	17	seventeen	17th	seventeenth	70	seventy	70th	seventieth	7,000(th)	seven thousand(th)
8	eight	8th	eighth	18	eighteen	18th	eighteenth	80	eighty	80th	eightieth	8,000(th)	eight thousand(th)
9	nine	9th	ninth	19	nineteen	19th	nineteenth	90	ninety	90th	ninetieth	9,000(th)	nine thousand(th)
10	ten	10th	tenth										

once	twice	three times	four times	five times	six times	seven times	eight times	nine times	ten times
onefold	twofold	threefold	fourfold	fivefold	sixfold	sevenfold	eightfold	ninefold	tenfold
single	double	triple	quadruple	quintuple		multiple		manifold	
	duplicate	triplicate							
	to double	to treble							

1,000,000 = a/one million £2,000,000 (£2m) = two million pounds $3,000,000 ($3m) = three million dollars millions of people
21 = twenty-one 36 = thirty-six 77 = seventy-seven 47th = forty-seventh 98th = ninety-eighth 51st = fifty-first
101 = one/a hundred and one 123 = one/a hundred and twenty three 658 = six hundred and fifty-eight
75,987 = seventy-five thousand nine hundred and eighty-seven 5,009 = five thousand and nine
1000th = a/one thousandth 2:1 = two to one (a ratio of two to one, a two-to-one ratio)
Fractions: ½ = a half ¼ = a quarter 3/4 = three-quarters 1/8 = an eighth 3/16 = three-sixteenths
1/3 = a/one third 2/3 = two-thirds 24/63 = twenty-four out of sixty-three
Years: 1993 = nineteen ninety-three 1066 = ten sixty-six 1789 = seventeen eighty-nine 1803 = eighteen 0 three
1900 = nineteen hundred 1992-1995 nineteen ninety-two to nineteen ninety-five
Telephone numbers: 543678 five four three six seven eight 604577 six 0 four five double seven (or seven seven)
Dates: 1st April = the first of April 24th July = the twenty-fourth of July June 6 = the sixth of June
Centuries: C20th = the twentieth century C19th = the nineteenth century C3rd = the third century
n.b. Chapter 5 = chapter five Henry VIII = Henry the Eighth Richard I = Richard the First item (iii) = item three
Table 4 or Table IV = Table four Fig. 6 = Figure six
the '70s = the 'seventies the '80s = the 'eighties the early 'eighties the mid 'eighties the late 'eighties
Mathematical: 16 - 9 = 7 sixteen minus nine equals seven 14 x 3 = 42 fourteen times three equals forty-two
≥ equal to or greater than ≤ equal to or less than ± plus or minus 6 + 3 = 9 six plus three equals nine
7^2 = seven squared 7^3 = seven to the third

SINGULAR AND PLURAL OF NOUNS

1.	a bone	bones
	a day	days
	a leg	legs
	a nerve	nerves
	a limb	limbs
	an ear	ears
	an enzyme	enzymes
	an eye	eyes
	an ulcer	ulcers
2.	a beat	beats
	a hip	hips
	a neck	necks
	a plate	plates
	a spot	spots
	an arc	arcs
	an effect	effects
	an effort	efforts
	an orbit	orbits
3.	a bridge	bridges
	a bruise	bruises
	a case	cases
	a disease	diseases
	a face	faces
	a nose	noses
	a nurse	nurses
	an edge	edges
	an urge	urges
4.	a class	classes
	a glass	glasses
	a crutch	crutches
	a mass	masses
	a rash	rashes
	a patch	patches
	a stitch	stitches
	an arch	arches
	an eyelash	eyelashes
	an illness	illnesses
5.	a baby	babies
	a copy	copies
	a diary	diaries
	a remedy	remedies
	a study	studies
	an allergy	allergies
	an injury	injuries
	an ovary	ovaries
6.	a calf	calves
	a half	halves
	a leaf	leaves
	a shelf	shelves
7.	a knife	knives
	a life	lives
	a wife	wives
8.	a roof	roofs
9.	a potato	potatoes
	a tomato	tomatoes
10.	a biro	biros
	a halo	halos
	a studio	studios
	a piano	pianos
11.	a basis	bases
	a crisis	crises
	a hypothesis	hypotheses
	a metastasis	metastases
	a prosthesis	prostheses
	an analysis	analyses
	an axis	axes
12.	a bacterium	bacteria
	a datum	data
	a medium	media
	an antrum	antra
	an omentum	omenta
13.	a criterion	criteria
	a ganglion	ganglia
	a phenomenon	phenomena
14.	a fungus	fungi
	a meniscus	menisci
	a nodulus	noduli
	a stimulus	stimuli
	a nucleus	nuclei
	an embolus	emboli
15.	a foetus	foetuses
	a plexus	plexuses
	a sinus	sinuses
	a virus	viruses

SINGULAR AND PLURAL OF NOUNS (2)

16.

a carcinoma	carcinomas carcinomata
a scotoma	scotomata
a stoma	stomas stomata
ano edema	oedemas oedemata

Irregular plurals (common)

a man	men
a Dutchman	Dutchmen
an Englishman	Englishmen
a Frenchman	Frenchmen
an Irishman	Irishmen
a Scotsman	Scotsmen
a fireman	firemen
a fisherman	fishermen
a policeman	policemen
a postman	postmen
a tradesman	tradesmen

n.b.

a German	Germans
a woman	women
a child	children
a foot	feet
a goose	geese
a tooth	teeth
a mouse	mice
a louse	lice
an ox	oxen
a deer	deer
a fish	fish
a sheep	sheep
a person	people persons
a brother	brothers brethren

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a cupula	cupulae
a papilla	papillae
a pleura	pleurae
a sequela	sequelae
a vertebra	vertebrae

Irregular plurals (medical)

an apex	apices
an appendix	appendices
a calyx	calyces
caput	capita
colitis	colitides
a crus	crura
a foramen	foramina
a fornix	fornices
a genital	genitalia
a glomus	glomera
a glottis	glottides
a haematozoon	haematozoa
a larynx	larynges
a lumen	lumina
a matrix	matrices
a meninx	meninges
a newborn	newborn
a phalanx	phalanges phalanxes
a pharynx	pharynges pharynxes
a protozoon	protozoa protozoons
a thorax	thoraces

INTERROGATIVE WORDS

WHO	WHO IS	WHO'S	WHOEVER	WHO ELSE	WHOM	WHOSE
HOW	HOW IS	HOW'S	HOWEVER	HOW ELSE		
WHAT	WHAT IS	WHAT'S	WHATEVER	WHAT ELSE		
WHY	WHY IS	WHY'S	WHYEVER			
WHICH	WHICH IS		WHICHEVER			
WHEN	WHEN IS	WHEN'S	WHENEVER			
WHERE	WHERE IS	WHERE'S	WHEREVER	WHERE ELSE		

WHO	WHO FOR?	WHO BY?	WHO TO?			
HOW	HOW FAR?	HOW MUCH?	HOW MANY?	HOW OFTEN?	HOW SOON?	HOW LONG?
WHAT	WHAT FOR?	WHAT WITH?	WHAT ABOUT?			
WHY	WHY NOT?					
WHICH	WHICH ONE?					
WHEN	WHEN FOR?	SINCE WHEN?	BY WHEN?			
WHERE	WHERE TO?	WHERE FROM?				

WHO	Who are you?	I'm William of Baskerville.
HOW	How are you?	I'm very well, thank you.
WHAT	What are you?	I'm a Franciscan monk.
WHY	Why are you here?	I'm here because I'm here.
WHICH	Which is your favourite herb?	My favourite herb is tobacco.
WHEN	When were you born?	I was born a long time ago.
WHERE	Where do you come from?	I come from the North of England.

A COMPARATIVE AND SUPERLATIVE OF ADJECTIVES

One-syllable adjectives (-er/-est)

broad	broader	the broadest	
cheap	cheaper	the cheapest	
clean	cleaner	the cleanest	mean
cool	cooler	the coolest	
dark	darker	the darkest	
deep	deeper	the deepest	
fast	faster	the fastest	
gay	gayer	the gayest	
great	greater	the greatest	
hard	harder	the hardest	
kind	kinder	the kindest	
light	lighter	the lightest	bright slight straight
long	longer	the longest	strong young
low	lower	the lowest	slow
near	nearer	the nearest	clear dear
neat	neater	the neatest	
new	newer	the newest	few
old	older	the oldest	cold wild
poor	poorer	the poorest	
proud	prouder	the proudest	
rich	richer	the richest	
rough	rougher	the roughest	tough
sharp	sharper	the sharpest	
short	shorter	the shortest	
smooth	smoother	the smoothest	
soft	softer	the softest	
tall	taller	the tallest	small
thick	thicker	the thickest	quick
warm	warmer	the warmest	
weak	weaker	the weakest	
big	bigger	the biggest	
fat	fatter	the fattest	flat fit hot wet
sad	sadder	the saddest	mad
slim	slimmer	the slimmest	dim
thin	thinner	the thinnest	
close	closer	the closest	
large	larger	the largest	strange
late	later	the latest	brave
pure	purer	the purest	crude rude
true	truer	the truest	
wise	wiser	the wisest	fine nice ripe wide
dry	drier	the driest	

Two-syllable adjectives

able gentle humble noble simple	abler gentler humbler nobler simpler	the ablest the gentlest the humblest the noblest the simplest	stable
dirty early easy happy heavy lazy lucky sunny tidy ugly windy	dirtier earlier easier happier heavier lazier luckier sunnier tidier uglier windier	the dirtiest the earliest the easiest the happiest the heaviest the laziest the luckiest the sunniest the tidiest the ugliest the windiest	pretty nasty friendly likely noisy crazy hazy funny
bitter clever tender	bitterer cleverer tenderer	the bitterest the cleverest the tenderest	slender
narrow shallow	narrower shallower	the narrowest the shallowest	
quiet	quieter	the quietest	
absurd even pleasant stupid	more absurd absurder more even evener more pleasant pleasanter more stupid stupider	the most absurd the absurdest the most even the evenest the most pleasant the pleasantest the most stupid the stupidest	solid

n.b. If you are not sure about a two-syllable adjective use "more" and "the most", <u>not</u> -ER/-EST.

complex	more complex	the most complex
exact	more exact	the most exact
precise	more precise	the most precise
recent	more recent	the most recent
silent	more silent	the most silent
special	more special	the most special
useful	more useful	the most useful careful

Adjectives of three syllables or more

3: difficult	more difficult	the most difficult
4: necessary	more necessary	the most necessary
5: enthusiastic	more enthusiastic	the most enthusiastic

Other examples:

3: beautiful, important, physical, popular, possible, probable, regular, usual
4: complicated, expensive, horizontal, improbable, particular, unpopular, unusual
5: extraordinary, international, understandable
6: incomprehensible, indistinguishable
7: interdisciplinary

Irregular comparatives and superlatives

bad	worse	the worst
good	better	the best
little (size)	smaller	the smallest
little (quantity)	less	the least
much	more	the most
many	more	the most
far	farther	the farthest (distance)
	further	the furthest (also abstract)
old	elder	the eldest (used to compare ages of brothers and sisters)

Old superlatives

	first
	last
	next

Unusual comparatives	Superlatives in "-most"
former	foremost
latter	
inner	innermost/inmost
outer	outermost/uttermost/utmost
upper	uppermost/upmost
	rearmost
	hindmost

B COMPARATIVE AND SUPERLATIVE OF ADVERBS

Practically all adverbs compare with MORE/THE MOST.

e.g.

accurately	more accurately	the most acccurately
beautifully	more beautifully	the most beautifully
carefully	more carefully	the most carefully
easily	more easily	the most easily
strongly	more strongly	the most strongly
thoroughly	more thoroughly	the most thoroughly
Some exceptions:		
well	better	(the) best
badly	worse	(the) worst
hard	harder	(the) hardest
fast	faster	(the) fastest
late	later	(the) latest
early	earlier	(the) earliest
soon	sooner	(the) soonest
slow	slower	(the) slowest
slowly	more slowly	the most slowly
quick	quicker	(the) quickest
quickly	more quickly	the most quickly

Comparison of adverbs with an accompanying change in intensity

later and later		
better and better		
worse and worse		
harder and harder	=	increasingly hard
faster and faster	=	increasingly fast
longer and longer	=	increasingly long
more and more slowly		
more and more cheaply		
more and more noisily		
more and more mechanically		
more and more scientifically		
less and less easily		
less and less deeply		

n.b. increasingly interesting	=	sempre più interessante
increasingly difficult	=	sempre più difficile
increasingly less productive	=	sempre meno produttivo
increasingly less effective	=	sempre meno efficace

CONDITIONAL SENTENCES

Basically, there are three different types of conditional sentences in English:

Type 1. The doctor **will come**, if he **has** time.
Type 2. The doctor **would come**, if he **had** time.
Type 3. The doctor **would have come**, if he **had had** time.

Conditional sentences - type 1

FUTURE TENSE + IF + PRESENT TENSE
(EFFECT) (CAUSE)

Examples:

The procedure **will be** safe, if you **sterilize** the needle.
The tablet **will dissolve**, if you **put** it in water.
The bleeding **will stop**, if you **use** electrocautery.
The patient **will recover**, if he **takes** the medicine.
The nurse **will return**, if it **is** really necessary.

In these sentences, the relationship between the two parts is one of **cause and effect**. The condition (in the second part after "if") is the cause, and the first part is the effect. These sentences are not hypothetical.
As in Italian, the two parts can be inverted:

The brain **will suffer**, if you **reduce** the oxygen supply.
If you **reduce** the oxygen supply, the brain **will suffer**.

The patient **will die**, if we **stop** the machine.
If we **stop** the machine, the patient **will die**.

The wound **will heal** quickly, if we **medicate** it.
If we **medicate** it, the wound **will heal** quickly.
If we **medicate** the wound, it **will heal** quickly.

The main difference as compared to Italian is that you do not use the future tense after "if", cf.:

The surgeon **will operate**, if he **thinks** it necessary.
Il chirurgo interverrà, se lo **riterrà** necessario.

His temperature **will go** down, if we **eliminate** the infection.
La sua temperatura scenderà, se **elimineremo** l'infezione.

Another subtype of conditional sentence based on **cause and effect** is the following:

IF + PRESENT TENSE + PRESENT TENSE
(CAUSE) (EFFECT)

Examples:

If water **boils**, it **changes** into steam.
If you **cut** yourself, you **lose** blood.
If the heart **stops** pumping, the patient **dies**.
If the temperature **is** below zero, water **freezes**.

In these sentences "if" = "when".

Conditional sentences - type 2

CONDITIONAL TENSE + IF + PAST TENSE

These sentences are hypothetical and possible.

Examples:

His condition **would improve**, if he **took** the medicine.
He **would take** the medicine, if it **tasted** nicer.
It **would taste** nicer, if it **contained** sugar.
I **would measure** the pH, if I **had** a pH-meter.
She **would know** more about it, if she **studied**.
He **would be** more efficient, if he **worked** harder.
We **would solve** the problem, if we **knew** the cause.

n.b. In this type of conditional sentence, "were" is preferable to "was" after "if", e.g.:

I **would not do** it, if I **were** you.
He **would operate**, if there **were** one chance in a hundred.
She **would feel** better, if her blood pressure **were** lower.
He **would be** happier, if she **were** more cooperative.

Do not confuse this with the subtype of conditional sentence using "**were to**" (Italian: "dovesse", "dovessero", etc.).

CONDITIONAL TENSE + IF + "WERE TO"

Examples:

He would put on less weight, if he were to drink less.
She would breathe better, if she were to stop smoking.
He would be able to read, if he were to wear glasses.

There is another, less common way of expressing the same conditions:

He would put on less weight, were he to drink less.
She would breathe better, were she to stop smoking.
He would be able to read, were he to wear glasses.

Conditional sentences - type 3

CONDITIONAL PERFECT TENSE + IF + PAST PERFECT TENSE

These sentences are hypothetical and impossible, for the simple reason that they refer to something unrealized in the past.

Examples:

He would have taken the medicine, if he had remembered.
The nurse would have come, if we had called her.
The patient would have died, if we hadn't operated.
He would have improved, if he had taken his medicine.
She would have gone there, if she had had time.
We would have known more, if we had been there.
I would have examined him, if he had asked me to.
He would not have got AIDS, if he had been more careful.

Again, there is another, less common way of expressing the same conditions (without "if").

Had she had time, she would have gone there.
Had we been there, we would have known more.
Had he asked me to, I would have examined him.
Had he been more careful, he would not have got AIDS.

THE TWELVE SPECIAL VERBS

BE	I am (I'm)	Am I?	I am not (I'm not)	Am I not? (Aren't I?)
	You are (You're)	Are you?	You are not (You're not/You aren't)	Are you not? (Aren't you?)
	He is (He's)	Is he?	He is not (He's not/He isn't)	Is he not? (Isn't he?)
	I was	Was I?	I was not (I wasn't)	Was he not? (Wasn't he?)
	You were	Were you?	You were not (You weren't)	Were You not? (Weren't you?)
HAVE*	I have (I've)	Have I?	I have not (I've not/I haven't)	Have I not? (Haven't I)
	He has (He's)	Has he?	He has not (He's not/He hasn't)	Has he not? (Hasn't he?)
	I had (I'd)	Had I?	I had not (I'd not/I hadn't)	Had I not? (Hadn't I?)
CAN	I can	Can I?	I cannot (I can't)	Can I not? (Can't I?)
COULD	I could	Could I?	I could not (I couldn't)	Could I not? (Couldn't I?)
MAY	I may	May I?	I may not (I mayn't)	May I not? (Mayn't I?)
MIGHT	I might	Might I?	I might not (I mightn't)	Might I not? (Mightn't I?)
WILL	I will (I'll)	Will I?	I will not (I won't)	Will I not? (Won't I?)
WOULD	I would (I'd)	Would I?	I would not (I wouldn't)	Would I not? (Wouldn't I?)

SHALL	I shall (I'll)	Shall I?	I shall not (I shan't)	Shall I not? (Shan't I?)
SHOULD	I should	Should I?	I should not (I shouldn't)	Should I not? (Shouldn't I?)
OUGHT	I ought	Ought I?	I ought not (I oughtn't)	Ought I not? (Oughtn't I?)
USED	I used	Used I?	I used not (I usedn't**)	Used I not? (Usedn't I**)
NEED	I need	Need I?	I need not (I needn't)	Need I not? (Needn't I?)
DARE	I dare	Dare I?	I dare not (I daren't)	Dare I not? (Daren't I?)
DO	I do	Do I?	I do not (I don't)	Do I not? (Don't I?)
	He does	Does he?	He does not (He doesn't)	Does he not? (Doesn't he?)
	I did	Did I?	I did not (I didn't)	Did I not? (Didn't I?)
MUST	I must	Must I?	I must not (I mustn't)	Must I not? (Mustn't I?)

* See separate notes on the forms and uses of the verb "to have".

** Much more common: "I didn't use" and "Didn't I use?"

	PERFECT TENSES		PERFECT CONDITIONAL TENSES
	ACTIVE	PASSIVE	ACTIVE
PRESENT TENSES	I have carried You have carried He has carried We have carried You have carried They have carried	I have been carried You have been carried He has been carried We have been carried You have been carried They have been carried	I have been carrying You have been carrying He has been carrying We have been carrying You have been carrying They have been carrying
PAST TENSES	I had carried You had carried He had carried We had carried You had carried They had carried	I had been carried You had been carried He had been carried We had been carried You had been carried They had been carried	I had been carrying You had been carrying He had been carrying We had been carrying You had been carrying They had been carrying
FUTURE TENSES	I will have carried You will have carried He will have carried We will have carried You will have carried They will have carried	I will have been carried You will have been carried He will have been carried We will have been carried You will have been carried They will have been carried	I will have been carrying You will have been carrying He will have been carrying We will have been carrying You will have been carrying They will have been carrying
CONDITIONAL TENSES	I would have carried You would have carried He would have carried We would have carried You would have carried They would have carried	I would have been carried You would have been carried He would have been carried We would have been carried You would have been carried They would have been carried	I would have been carrying You would have been carrying He would have been carrying We would have been carrying You would have been carrying They would have been carrying
INFINITIVE	(to) have carried	(to) have been carried	(to) have been carrying
GERUND	having carried	having been carried	having been carrying

THE FORMS OF THE ENGLISH TENSES
A VERB CHART OF THE REGULAR VERB "TO CARRY"

	SIMPLE TENSES		CONTINUOUS OR IMPERFECT TENSES	
	ACTIVE	PASSIVE	ACTIVE	PASSIVE
PRESENT	I carry	I am carried	I am carrying	I am being carried
	You carry	You are carried	You are carrying	You are being carried
	He carries	He is carried	He is carrying	He is being carried
	We carry	We are carried	We are carrying	We are being carried
	You carry	You are carried	You are carrying	You are being carried
	They carry	They are carried	They are carrying	They are being carried
PAST	I carried	I was carried	I was carrying	I was being carried
	You carried	You were carried	You were carrying	You were being carried
	He carried	He was carried	He was carrying	He was being carried
	We carried	We were carried	We were carrying	We were being carried
	You carried	You were carried	You were carrying	You were being carried
	They carried	They were carried	They were carrying	They were being carried
FUTURE	I will carry	I will be carried	I will be carrying	I will be being carried
	You will carry	You will be carried	You will be carrying	You will be being carried
	He will carry	He will be carried	He will be carrying	He will be being carried
	We will carry	We will be carried	We will be carrying	We will be being carried
	You will carry	You will be carried	You will be carrying	You will be being carried
	They will carry	They will be carried	They will be carrying	They will be being carried
CONDITIONAL	I would carry	I would be carried	I would be carrying	I would be being carried
	You would carry	You would be carried	You would be carrying	You would be being carried
	He would carry	He would be carried	He would be carrying	He would be being carried
	We would carry	We would be carried	We would be carrying	We would be being carried
	You would carry	You would be carried	You would be carrying	You would be being carried
	They would carry	They would be carried	They would be carrying	They would be being carried
INFINITIVE	(to) carry	(to) be carried	(to) be carrying	(to) be being carried
GERUND			carrying	being carried

THE VERB "TO HAVE"

FORMS: HAVE HAS HAD HAVING

The tenses

Present:	I have	Present perfect:	I have had
Past:	I had	Past perfect:	I had had
Future:	I will have	Future perfect:	I will have had
Conditional:	I would have	Conditional perfect:	I would have had

Present tense

Affirmative		Interrogative
I have	(I've)	Have I?
You have	(You've)	Have you?
He has	(He's)	Has he?
She has	(She's)	Has she?
It has	(It's)	Has it?
We have	(We've)	Have we?
You have	(You've)	Have you?
They have	(They've)	Have they?

Negative

I have not	I haven't	I've not
You have not	You haven't	You've not
He has not	He hasn't	He's not
She has not	She hasn't	She's not
It has not	It hasn't	It's not
We have not	We haven't	We've not
You have not	You haven't	You've not

Negative interrogative

Have I not?	Haven't I?
Have you not?	Haven't you?
Has he not?	Hasn't he?
Has she not?	Hasn't she?
Has it not?	Hasn't it?
Have we not?	Haven't we?
Have you not?	Haven't you?

Note on pronunciation

The forms "have" and "has" are followed by "to" when the verb is used to express obligation (e.g. I have to go = I must go). In these cases, the final consonant, which is normally voiced, is unvoiced.

Compare:

Voiced	Unvoiced
I have a thermometer.	I have to measure the patient's temperature.
You have a tablet.	You have to administer it to the patient.

USES OF "TO HAVE"

The verb "to have" has several distinct uses, the most important of which are the following:

A. POSSESSION (with or without "got")

e.g.

I have a new car = I have got a new car (Ho una macchina nuova)
He has a black suit = He has got a black suit (Ha un vestito nero)

B. NON-POSSESSION ("got" cannot be used)

e.g.

He has a shower every day (Fa la doccia tutti i giorni)

C. OBLIGATION (with or without "got")

e.g.

I have to switch it on = I have got to switch it on (Devo accenderlo)
He has to take 4 a day = He has got to take 4 a day (Deve prendere 4 al dì)

N.B. La parola "got" nelle frasi di tipo A o C non ha significato.

* * *

A. POSSESSION

Examples:

He has a car.	He has got a car.	He's got a car.
Has he a car?	Has he got a car?* Does he have a car?*	

* These forms are more common than simply "Has he ... ?".

He hasn't a car.	He has not got a car.* He doesn't have a car.*	He's not got a car.* He hasn't got a car.*

* These forms are more common than simply "He hasn't".

Hasn't he a car?
Hasn't he got a car?*
Doesn't he have a car?*

* These forms are the ones most commonly used.

Have you a car?	Yes, I have a car.	No, I haven't (a car).
Have you got a car?	Yes, I've got a car.	No, I haven't got a car.
Do you have a car?	Yes, I have a car.	No, I don't have a car.
Don't you have a car?	Yes, I have a car.	No, I don't have a car.
Haven't you got a car?	Yes, I've got a car.	No, I haven't got a car.

B. NON-POSSESSION

In these expressions, "to have" does not mean "to possess" and the Italian equivalent is not "avere".

to have a bath	(fare il bagno [nella vasca])
to have a shower	(fare la doccia)
to have a wash	(lavarsi)
to have a shave	(farsi la barba)
to have breakfast	(fare la prima colazione)
to have lunch	(pranzare)
to have dinner	(cenare)
to have a meal	(mangiare un pasto)
to have a snack	(fare uno spuntino)
to have a sandwich	(mangiare un panino)
to have bacon and eggs for breakfast	(mangiare uova e pancetta per prima colazione)
to have a cup of coffee	(bere una tazza di caffe)
to have a drink	(bere qualcosa)
to have a holiday	(fare una vacanza)
to have a swim	(fare il bagno/una nuotata)
to have a good time	(divertirsi)
to have a letter	(ricevere una lettera)
to have a rest	(riposarsi)
to have a cigarette	(fumare una sigaretta)
to have a sleep	(dormire)
to have a nap	(schiacciare un pisolino)

N.B.

Effectively, "have" in these expressions is the equivalent of another normal verb such as "take", "eat", "drink", etc., and consequently the auxiliary verb "do" must be used in the negative and interrogative forms.

Examples:

I have a bath.	Do you have a bath?	I don't have a bath.
I have a meal.	Do you have a meal?	I don't have a meal.
I have breakfast.	Do you have breakfast?	I don't have breakfast.
I have a cup of coffee.	Do you have a cup of coffee?	I don't have a cup of coffee.
I have a glass of wine.	Do you have a glass of wine?	I don't have a glass of wine.
I have bacon for breakfast.	Do you have bacon for breakfast?	I don't have bacon for breakfast.
I had a holiday.	Did you have a holiday?	I didn't have a holiday.
I had a swim.	Did you have a swim?	I didn't have a swim.
I had a shower.	Did you have a shower?	I didn't have a shower.
I had a rest.	Did you have a rest?	I didn't have a rest.
I had dinner.	Did you have dinner?	I didn't have dinner.

C. OBBLIGATION

Only the forms are given here. For more details on usage and meaning, see the section on equivalents of Italian "dovere", "potere" and "permettere".

Affirmative

I have to go	=	I've got to go	=	I must go
You have to work	=	You've got to work	=	You must work
He has to study	=	He's got to study	=	He must study
She has to read	=	She's got to read	=	She must read
It has to wait	=	It's got to wait	=	It must wait
We have to stay	=	We've got to stay	=	We must stay
You have to come	=	You've got to come	=	You must come
They have to pay	=	They've got to pay	=	They must pay

Interrogative

Have I to go?	=	Have I got to go?	=	Must I go?	=	Do I have to go?
Have you to work?	=	Have you got to work?	=	Must you work?	=	Do you have to work?
Has he to study?	=	Has he got to study?	=	Must he study?	=	Does he have to study?
Has she to read?	=	Has she got to read?	=	Must she read?	=	Does she have to read?
Has it to wait?	=	Has it got to wait?	=	Must it wait?	=	Does it have to wait?
Have we to stay?	=	Have we got to stay?	=	Must we stay?	=	Do we have to stay?
Have you to come?	=	Have you got to come?	=	Must you come?	=	Do you have to come?
Have they to pay?	=	Have they got to pay?	=	Must they pay?	=	Do they have to pay?

Negative (= not obliged)

I don't have to go	=	I haven't got to go	=	I needn't go
You don't have to work	=	You haven't got to work	=	You needn't work
He doesn't have to study	=	He hasn't got to study	=	He needn't study
She doesn't have to read	=	She hasn't got to read	=	She needn't read
It doesn't have to wait	=	It hasn't got to wait	=	It needn't wait
We don't have to stay	=	We haven't got to stay	=	We needn't stay
You don't have to come	=	You haven't got to come	=	You needn't come
They don't have to pay	=	They haven't got to pay	=	They needn't pay

Negative (= prohibition)

I have not to go	=	I must not go	= I mustn't go
You have not to work	=	You must not work	= You mustn't work
He has not to study	=	He must not study	= He mustn't study
She has not to read	=	She must not read	= She mustn't read
It has not to wait	=	It must not wait	= It mustn't wait
We have not to stay	=	We must not stay	= We mustn't stay
You have not to come	=	You must not come	= You mustn't come
They have not to pay	=	They must not pay	= They mustn't pay

A - B - C NOTE ON INTERROGATIVE AND NEGATIVE PAST FORMS

Usually, the auxiliary verb "did" is used (always in type B).

	Interrogative	Negative
A	Did he have a car?	No, he didn't have a car.
B	Did he have a bath?	No, he didn't have a bath.
C	Did he have to work?	No, he didn't have to work.

D. AUXILIARY

e.g.

I HAVE	I HAD	I WILL HAVE	I WOULD HAVE
I have worked	I had worked	I will have worked	I would have worked

Example of complete present perfect tense:

Affirmative		Interrogative
I have worked	I've worked	Have I worked?
You have arrived	You've arrived	Have you arrived?
He has come	He's come	Has he come?
She has gone	She's gone	Has she gone?
It has left	It's left	Has it left?
We have talked	We've talked	Have we talked?
You have written	You've written	Have you written?
They have studied	They've studied	Have they studied?

Negative		Negative interrogative *
I have not worked	I haven't worked	Haven't I worked?
You have not arrived	You haven't arrived	Haven't you arrived?
He has not come	He hasn't come	Hasn't he come?
She has not gone	She hasn't gone	Hasn't she gone?
It has not left	It hasn't left	Hasn't it left?
We have not talked	We haven't talked	Haven't we talked?
You have not written	You haven't written	Haven't you written?
They have not studied	They havent't studied	Haven't they studied?

* The negative interrogative form is usually spoken (rarely written), and therefore the short form indicated here is far more common (e.g. "Haven't they studied?" is much more common than "Have they not studied?"). Notice, however the different word order (different position of "not").

N.B.

The auxiliary verb used in the perfect tenses in English is <u>always</u> the verb "to have" and never the verb "to be", as it is in Italian with verbs of motion and reflexive verbs.

e.g

Io sono arrivato	I have arrived
Lui si è visto	He has seen himself
Nessuno è venuto	Nobody has come
Si sono scambiate delle lettere	They have exchnged letters

E. HAVE + OBJECT + PAST PARTICIPLE

e.g.

I have my hair cut	(Mi faccio tagliare i capelli)
I had a house built	(Mi feci costruire una casa)
I will have my watch mended	(Mi farò riparare l'orologio)

N.B.

Expressions using "avere" in Italian and the verb "to be" in English:

I'm hot.	Ho caldo.
I'm cold.	Ho freddo.
I'm right.	Ho ragione.
I'm wrong.	Ho torto.
I'm hungry.	Ho fame.
I'm thirsty.	Ho sete.
I'm afraid.	Ho paura.
I'm in a hurry.	Ho fretta.
I'm 20 (years old).	Ho vent'anni.
I'm sorry for you.	Ho compassione di te.
I'm sleepy.	Ho sonno.
I'm busy.	Ho da fare.
I'm ashamed.	Ho vergogna.
I'm lucky.	Ho fortuna.
I'm unlucky.	Ho sfortuna.
I've been unlucky.	Ho avuto sfortuna.
It's not important.	Non ha importanza.
The train is 20 minutes late.	Il treno ha un ritardo di 20 minuti.
We must be patient.	Dobbiamo avere pazienza.
It is my duty to stop him.	Ho il dovere di fermarlo.
What date is it today?	Quanti ne abbiamo oggi?
What's the matter?	Che cos'hai?

Other verbs are also sometimes used for the Italian "avere"

e.g.

I need your help.	Ho bisogno del tuo aiuto.
We must take care of him.	Dobbiamo avere cura di lui.
When will it take place?	Quando avrà luogo?

SOME - ANY - NO - EVERY - EACH - ALL

some	any	none		each	
some	any	no	every	each	all (the)
something	anything	nothing	everything	each thing	(all things)
someone somebody	anyone anybody	no-one nobody	everyone everybody	each one	
somewhere	anywhere	nowhere	everywhere		
sometime at some time sometimes	anytime at any time	(never) at no time	every time	each time	(always) at all times
somehow in some way by some means to some extent some day in some cases some more somewhat	anyhow * in any way by any means * to any extent any day in any case * any more any longer anyway	nohow in no way by no means * to no extent in no case no more no longer	in every way (by every means) every day in every case	(in) each way * each day in each case	in all ways by all means * all day (long) in all cases

* Each of these words or phrases has a second, more idiomatic meaning.

NOTES ON THE USE OF THE DEFINITE ARTICLE IN NORMAL AND MEDICAL ENGLISH

One important distinction to be made immediately is between concrete (tangible) and abtsract (intangible) nouns, e.g.:

Concrete			Abstract		
table	needle	liver	accuracy	appearance	illness
syringe	drug	lung	time	fear	health
patient	tablet	kidney	strength	specificity	tolerance
doctor	brain	nerve	heat	sterility	frequency
microscope	heart	vein	truth	significance	incidence

Concrete nouns, when used as nouns and not as adjectives (e.g. patient characteristics, drug effects, nerve ending, lung cancer, liver failure, etc.), cannot appear alone in the singular. In other words, "needle" without any article or qualifying word exists only in the dictionary (and in figure, legends, captions, etc. - see below). You never normally find "lung" alone in a sentence (except when used as an adjective, e.g. "lung physiology").

He works in the field of lung physiology.

When lung is used as a noun in the singular it must be preceded by an article or qualifying word:

a lung	the lung	my lung	his lung	her lung	your lung
this lung	that lung	John's lung	each lung	every lung	one lung
another lung					

The same is true of all concrete nouns:

a book	the book	my book	his book	her book	your book
their book	our book	this book	that book	John's book	each book
every book	one book	another book			

"Book" alone exists without an article or qualifying word only when followed by a number in a series:

			Book 1	Book 2		
cf.	Volume 1	Volume 2	Table 1	Table 2	Figure 1	Figure 2

The diseases are listed in Table 1.
The technique is illustrated schematically in Figure 2.

Abstract nouns in the singular have no definite article when the meaning is general.
e.g.:

truth sterility health accuracy heat

He is searching for truth.
I am doing research on sterility.
Good health is a precious gift.
Accuracy is vital in scientific work.
Heat may be one of the causes.

When, however, the abstract noun is no longer general, but refers to a specific or defined case, the definite article ("the") must be used.

The truth of the matter is that we don't know the cause.
The health of my patients is my main concern.
Can you check the sterility of these instruments?
The accuracy of your results is doubtful.
The heat of the lamp melted the substance.

Similarly, concrete nouns in the plural are used with or without the definite article according to whether they are general or specific/defined.

General

Drugs are useless in this situation.
Patients tend to ask a lot of questions.
Microscopes are useful instruments.
Needles must be handled carefully.
Nerves conduct electrical impulses.

Specific

The drugs you want to use are useless in this situation.
The patients in this department tend to ask a lot of questions.
The microscopes in this laboratory are useful instruments.
The needles you are using must be handled carefully.
The nerves in this area conduct electrical impulses.

The same is true of abstract nouns in the plural:

General

We use various techniques.
Evoked responses are important in neurology.

Specific

The various techniques we used are described in a previous study.
The evoked responses we observed were abnormal.

In simple terms, general concepts are expressed in English without the definite article, while the article is used in specific cases. There is, however, an increasing tendency in modern medical English to omit the definite article (for brevity of expression) in cases where, strictly speaking, it is required.

e.g.

Patients were divided into two subgroups. (= The patients were divided ...)
Results are shown in Table 2. (= The results are shown ...)
Data were analyzed using Student's t-test. (= The data were analyzed ...)
Drugs were administered on alternate days. (= The drugs were administered ...)
We studied tolerability of such agents. (= We studied the tolerability ...)
Specificity of therapy was assessed. (= The specificity of the therapy ...)

The definite article is also used in titles/subtitles, tables, figures, figure legends, etc., again for reasons of brevity of presentation.

e.g.

Titles

Efficacy and tolerability of ranitidine in treatment of refractory duodenal ulcer

Enhancing quality of life in patients with Alzheimer's-disease

Figure legends

View of right lung after surgery.

Needle used in sclerotherapy of bleeding oesophageal varices.

KEY WORDS IN CONTEXT

Complete the sentences with the appropriate words:

though through throughout thorough thought

1. A ..... examination of the patient's medical history was required.
2. We ..... that steroid therapy would provide some benefit.
3. Patients were monitored ..... the study period.
4. Severe stenosis may prevent solids from passing ..... the lumen.
5. Surgery should be effective, ... we cannot be sure.

as soon as as much as as long as as far as as well as

1. The abbreviation q.p. (*quantum placet*) means .... you like.
2. .... I am concerned, the patient can be discharged.
3. He breathes .... can be expected for a man with severe emphysema.
4. The endoscope could only penetrate .... the sigmoid colon.
5. We will perform the transplant .... a donor can be found. (2 possibilities)
6. The technique has been used in the UK, ... in the USA and Japan.
7. You can stay in the laboratory .... you don't touch anything.
8. She weighs .... her brother.
9. This operation was not .... the last one.
10. Call me .... she recovers consciousness.

every very ever even each

1. He gave a ..... stimulating talk on the topic.
2. ..... of the subjects performed three consecutive tests.
3. Has she ..... taken this drug before.
4. You have made ..... conceivable mistake.
5. He may ..... decide to withdraw from the study.

both either neither nor

1. He felt strange sensations in ..... legs.
2. His only choice is ..... to stop smoking or aggravate his lung condition.
3. ..... the patient and his wife were healthy carriers of the disease.
4. She ..... checked his temperature nor measured his blood pressure.
5. He repeatedly experienced pain in ..... his right or left arm.
6. He felt no pain on ..... side of his head.
7. Neither the doctor ..... his assistant noticed the discrepancy.
8. They didn't have any operative mortality and they didn't observe any postoperative complications ..... .

none no-one nothing no nor not

1. Who can you see? .....
2. How many lesions can you see? .....
3. Can you see any? .....
4. What can you see? .....
5. How many people work there? .....
6. ..... of the victims survived.
7. ..... else could perform this operation.
8. ..... matter what we do, the pain will recur.
9. ..... surprisingly, the artery was found to be damaged.
10. Surgical treatment was ..... more effective than drug treatment. (2 possibilities)
11. This procedure is by ..... means easy to learn.
12. Clearly, there was ..... to be done at such a late stage.
13. The drug is ..... longer available for prescription.
14. Neither CT scans ..... MRI yielded any further useful data.

other another others else

1. There's nothing ..... we can do in the circumstances.
2. He's going to need ..... prosthesis very soon.
3. Some drugs are efficacious in this condition, and ..... are not.
4. They looked at each ..... suspiciously for a moment.
5. Where are all the ..... we had?
6. He needs at least ..... three litres of plasma.
7. Who ..... is willing to take part?
8. Someone or ..... will have to take care of him.
9. What ..... solution do you suggest?
10. ..... than dietary therapy, there is very little we can do for you.

what whatever where whereby whether wherever whereas

1. I really don't know ..... this will work or not.
2. ..... you send the patient, they will have to put him in intensive care.
3. ..... drug he takes, the outcome is likely to be the same.
4. He doesn't understand ..... he's doing.
5. Pancreatic function, ... endocrine or exocrine, needs to be monitored.
6. The patients on the active drug showed a distinct improvement, ... those on placebo did not.
7. He never told us ..... had happened.
8. You'll have to stop drinking, ... you like it or not.
9. I'm afraid there are metastases ..... you look.
10. The mechanism ..... clots form in the cerebral blood vessels is fairly simple.
11. The obstetrician was not sure ..... the baby's head was.
12. ..... was wrong was that nobody bothered to check the data.

VERONA UNIVERSITY FACULTY OF MEDICINE

ENGLISH TRANSLATION EXAMINATION

30th January 1998

Translate **both** the following passages into Italian. The time allowed is 2 hours. Please write the translations on alternate lines on **separate sheets of paper**, leaving a reasonable margin on the right-hand side. Please put your name and matriculation number on each sheet. You are strongly advised to allot approximately one hour to each part.

Part 1

X-ray protein crystallography techniques have recently been used to study the crystalline structure of the rhinovirus responsible for over one-third of common colds, revealing that the protein shells of rhinovirus particles are constructed in the form of an icosahedron. Around each of the twelve vertices of the particle runs a groove, or canyon, at the bottom of which lies a structure thought to interact with protruding receptors on susceptible cells of the nasal lining, thereby triggering the opening up of the shell and the release of its load of infectious genes into the target cell. Antibody molecules capable of interfering with this action may do so by attaching to sites near the rim of the canyon, although they prove too large to reach the protected structure on the canyon floor. One line of research pursued over the past 10-15 years has involved the development of drugs capable of inserting themselves at the base of the canyon and thus of inactivating the virus.

Many people find a runny or blocked nose the most disagreeable part of a cold, and most cold remedies are designed to relieve these symptoms. If their immediate cause were better understood, better remedies might be devised.

Recent research has shown that during infection with cold-causing viruses, some of the cells lining the nasal passage are damaged and the hair-like processes that clear the mucus are destroyed. Obviously, that portion of the symptoms brought on by such damage will disappear only when the nasal lining heals and replacement cells are formed. On the other hand, it would appear that histamine and related substances, which produce the symptoms experienced in nasal allergies, are found only in low concentrations during colds and that antihistamines afford little benefit to cold sufferers. Cold symptoms, then, are produced in a different way to those of such diseases as hay fever. Bradykinins, natural peptide substances involved in inflammation and released from injured tissue, are present in nasal secretions during colds and, when administered to healthy volunteers, induce cold-like symptoms. The next step should be to determine whether antibradykinins can prevent or alleviate cold symptoms.

UNIVERSITY OF VERONA - FACULTY OF MEDICINE

ENGLISH TRANSLATION EXAMINATION

14th June 1990

Translate into Italian. The time allowed is 2 hours.

What we are up against in assessing objectively the feasibility of achieving lasting pain relief in patients with superior sulcus (Pancoast) syndrome are attitudes reflecting the extreme, though deep-rooted conviction that «the correct diagnosis is made too late, when the disease has progressed to a state which precludes relief of pain». The long-standing legacy of failure of open cordotomy to produce satisfactory relief has led to the use of the same touchstone in evaluating the efficacy of percutaneous cervical cordotomy.

The result is that numerous neurosurgeons are uncertain or undecided as to the effectiveness of the procedure, and one writer even goes so far as to contend that the only advantage of percutaneous cervical cordotomy is that «it can be performed in the severely debilitated patient ... with a short survival expectancy» in view of the fact that it «causes the same deficiencies encountered with the open cervical cordotomy in subjects who had a long-term survival», which is a somewhat startling statement for an author who reports the execution of only 3 percutaneous cervical cordotomies for Pancoast syndrome.

Against this background, the effectiveness of percutaneous cervical cordotomy for the relief of pain associated with Pancoast syndrome has become a subject of ambivalent opinion. Many authors are in two minds about the subject owing to the widely divergent success rates reported for the procedure: the satisfactory pain relief figures (3-month follow-up) obtained by some authors in a significant number of patients contrast strikingly with the disconcertingly contradictory or discouraging results of others in relatively small patient series. Why is this?

Firstly, there is general agreement that the statistical data are inadequate. This takes on various forms: (i) few specific reports; (ii) failure to differentiate clearly between superior sulcus Pancoast tumour and other thoracic or pulmonary neoplastic conditions; (iii) lack of precise information as to the localization of the neoplastic process, the distribution of the pain, the nature of the pain (chronic-continuous and/or incident; somatic or deafferentation pain; pain intensity, etc.) and time of onset of pain in relation to both diagnosis and execution of cordotomy; (iv) lack of reliable long-term follow-up; (v) inadequate details of patient survival. An immediate consequence of these statistical shortcomings is that no precise relationships or correlations can be established between stage of cancer, patient survival and lasting efficacy of pain relief with the percutaneous cervical

cordotomy procedure. Occasionally, indeed, the average survival time reported may be downright misleading.

Secondly, there are a whole series of problems broadly definable as «difficulties in obtaining and maintaining an adequate level of analgesia in the cervical and thoracic spinal segments». These include problems of technical feasibility: «failure and bad results are mainly due to difficulties with achieving complete abolition of pain arising from the brachial plexus and an insufficient level of analgesia»; moreover, fading of the analgesia is often taken for granted. A further claim is that the duration of effects is longer in patients with predominantly somatic pain than in patients with predominant deafferentation pain of the brachial plexus, which is tantamount to stating the obvious, when we consider that percutaneous cervical cordotomy is only temporarily efficacious or thoroughly inefficacious in relieving the latter type of pain. Failure is also ascribed, perhaps somewhat speculatively, to anatomical variations (alteration of the spinal cord, incomplete or delayed cross-over of fibres, variable fibre distribution, displaced sensory pathways, new pathways and connections).

Electrode positioning in the anterolateral spinal quadrant has a direct bearing on the above-mentioned problems of technical feasibility and anatomical variations, where, unfortunately, a certain amount of confusion reigns. Sweet and co-workers stress a «marked difference in effective site (spinal target) in the anterior quadrant». These authors are to be commended for the photographic documentation they provide, but might, perhaps, be victims of some sort of optical illusion.

Anatomy for Everyone

by Richard R. Andrews, M.D.
(Encyclopaedia Britannica Medical and Health Annual 1994)

Most people would like to know more about how their body is built and why it functions as it does - *without* going to medical school or getting a Ph.D. in anatomy! Even those who do acquire such specialized knowledge would appreciate a tool that further facilitates learning and would be useful for the exchange of ideas with professional colleagues. Being able to walk through a grand-scale three-dimensional human body could be "just what the doctor ordered".

Larger than life

This concept of a colossal model of the human body, in fact, is not new. According to the French archaeologist R.A. Schwaller de Lubicz, author of *Temple in Man; Sacred Architecture and the Perfect Man*, the 18th-dynasty Great Temple of Amon at Luxor at one time was laid out in the shape of a body, with a "heart room", a "stomach room" and a "head room". Over the years there has been no lack of interest in larger-than-life body models. Probably the two best-known examples from more recent times are in Chicago's Museum of Science and Industry and Philadelphia's Franklin Institute Science Museum; both institutions can boast decades-old walk-through hearts. Some physicians report having been so impressed with these models as children that they were motivated to enter the healing profession.
Other walk-through anatomy exhibits include a tooth at the Cleveland Health Education Museum and a pelvis in the department of anatomy at Harvard Medical School in Boston. In every instance these educational exhibits have been great attractions. Such popularity was undoubtedly the motivation for a whole-body amusement park at Walt Disney World's Epcot Center in Florida. In 1989 an entire pavilion, measuring some 9,300 square meters in size and devoted to dramatizing the intricacies of the human body and making the subjects of health and disease come alive, was opened. The exhibits in the Wonders of Life Pavilion include "Body Wars" - a simulator-assisted trip through the human body and the chance to witness an "inner-space" conflict in which bacteria invade the bloodstream and are attacked by the immune system's powerful scavenger and killer cells; "Cranium Command", which allows visitors to get inside the brain of a 12-year-old boy, and the not-to-be missed "Sensory Funhouse", with its hands-, feet-, ears-, and eyes-on displays.

Museum of the Future

In 1988 the concept of the not-yet-realized International Museum of Anatomy (IMA), eventually to be housed in Washington D.C., and to contain the ultimate walk-through body model, was born. The intent is to build a Statue of Liberty-sized human body in a recumbent or semirecumbent position such that visitors will be able to stand inside virtually every major organ or structure of importance. This future museum will offer models that will be detailed and sophisticated enough to be of interest to even the most knowledgeable physician-visitor. Yet the five-year-old child will also be able to learn more than ever before was possible in a direct, experiential way. In such a learning environment even the person with a disability such as dyslexia, which makes "book learning" difficult, would be at considerably less of a disadvantage.

The gigantic model will teach normal anatomy (body *structure*), and, of course, pathology (body *disease*). The exhibits within the body will serve many purposes. Schoolchildren, for instance, will be able to learn about substance abuse in a no-nonsense way; a "field trip" through the brain will show exactly what damage a drug such as cocaine can do to the "pleasure center" of this complex organ and why, once the harm has been done, chronic users of the drug often find themselves unable to experience any pleasure at all. Meanwhile, in another part of the body, physicians would be able to stand inside a series of progressively healing body sores and address some of the therapeutic controversies concerning wound treatments.

In 1992, a smaller-scale, single-organ prototype for the eventual body-building project was begun - construction of a 3 x 3 meter fiberglass eyeball. By late 1993, when the eyeball opens its lid to the public, visitors will be able to walk through this first-of-its-kind organ, located in Northampton county, Virginia. The team that conceived and designed the eye include a practicing ophthalmologist, a family practice doctor, a nurse/carpenter, teachers, and artists. How better to become a "pupil" than to actually be inside a pupil and discover how this adjustable opening in the center of the iris (the eye's colored portion) regulates the passage of light? It is more than just a black dot, after all! To get to the pupil, one will have stepped through the transparent structure at the front of the eye (the cornea). From the pupil one can proceed to the posterior chamber - passing through the biconvex lens into the jellylike vitreous and eventually arriving at the all-important retina - the eye's "essence" - which, one will learn, has direct extensions (the retinal nerves) to the brain. Viewers will "see" for themselves what causes near-sightedness, glaucoma and cataracts. They will also discover where tears come from and where they go, besides down the cheeks. A hint: ever wonder why people have to blow their noses after crying?

It is likely that the enthusiasm of body tourists who visit the Northampton county eyeball will breathe life into the next-planned organ model in the same state. Support is growing for the construction of a 10 x 30 meter walk-through human lung to be strategically located in Richmond. Some Virginians are already looking forward to the day when their capital city is known as the "lung capital of the world" rather than the "tobacco capital". Perhaps by then some healthier agricultural product will have replaced the state's current leading cash crop. Such a model may well provide the most effective deterrent to smoking, or the best incentive for quitting, that medicine has to offer - better than Surgeons General's reports or the most stringent antismoking legislation and lessening the need for such cures as nicotine gum or patches. Young and old will be able to walk through and discover how a pink, healthy lung looks and works; then they will see - from the inside - how emphysema, bronchitis and lung cancer develop in the charred, black lungs of a smoker. If "a picture is worth a thousand words", this model should be worth *ten thousand* words on the prevention front.

Other individual organs and body parts are envisioned. Meanwhile, full efforts are being devoted to achieving the necessary technological developments to bring the grand plan for the IMA into being. The District of Columbia-based body will take advantage of state-of-the-art computer technologies such as laser holography, virtual reality, and touch-sensitive video screens that provide menu-guided access to each anatomic part - in many languages and at various levels of sophistication. To learn about the pancreas, for example, one visitor might select "Ph.D./Swahili", another "second-grade/English". In this ultimate "classroom" neurosurgeon and schoolchild alike will be able to discover previously unimagined wonders of human anatomy.

MOCK TRANSLATION EXAMINATION

20 March 2007 – Class IIX

Time allowed: 90 minutes

Sleeping sickness is a parasitic disease affecting both people and animals. The causative agents are protozoa belonging to the genus *Trypanosoma,* transmitted by the tsetse fly, a large, brown, stealthy insect whose bite feels like a hot needle being stuck into the flesh. During a blood meal on the mammalian host, an infected tsetse fly injects metacyclic trypomastigotes into its victim's skin tissue, allowing the parasites to pass into the lymphatic system and thence into the blood stream. It is estimated that 50,000 to 70,000 people may currently be infected worldwide, the number having declined somewhat in recent years. Three major epidemics have occurred in the past century.

Sleeping sickness typically sets in with fever, headaches and joint pains. As the parasites enter through both the blood and lymph systems, lymph nodes often swell up to tremendous sizes. Winterbottom's sign, the telltale swollen lymph glands along the back of the neck may appear. If untreated, the disease slowly overcomes the infected person's defences, and symptoms spread to include anaemia, endocrine, cardiac and kidney diseases and disorders. The disease then enters a neurological phase when the parasite crosses the blood-brain barrier. These symptoms of the second phase give the disease its name: besides confusion and reduced coordination, the sleep cycle is seriously disturbed with bouts of fatigue punctuated with manic periods progressing to daytime slumber and night-time insomnia. Without treatment, the disease proves fatal, with progressive mental deterioration, eventually resulting in coma and death. Damage caused in the neurological phase may prove irreversible.

The diagnosis rests upon demonstrating trypanosomes by microscopic examination of chancre fluid, lymph node aspirates, blood, bone marrow, or, in the late stages of infection, cerebrospinal fluid. A wet preparation should be examined, and in addition a smear should be fixed, stained with Giemsa and examined.

Regular active surveillance, involving case detection and treatment, in addition to tsetse fly control, is the backbone of the strategy for controlling sleeping sickness. Systematic screening of communities is the best approach, as case-by-case screening is impracticable in highly endemic regions. Systematic screening may take the form of mobile clinics or fixed screening centres where teams travel daily to the main areas of infection. The nature of the disease in central and western Africa is such that patients do not seek treatment early enough because the symptoms at that stage are not evident or serious enough to warrant seeking medical attention. Also, diagnosis of the disease is difficult and most health workers may be unable to detect it.

Dr. Lee Soo-hee, a researcher working at Johns Hopkins University, has investigated the pathway whereby the organism changes its outer layer, avoiding immunological capture, using an enzyme called elongase.

nb stealthy = subdola trypomastigotes = tripomastigoti telltale = patognomonico
Giemsa = Giemsa chancre fluid = fluido in sede di inoculo
elongase = elongase

Mock Translation Examination 23 November 2006

You have one hour and thirty minutes.

The most intimidating or overwhelming aspect of the paediatric intensive care environment is likely to be the substantial array of medical equipment that may be attached to the infant patients. Examples of patients referred to the paediatric intensive care unit (PICU) are infants experiencing severe breathing problems (for instance, premature newborn with respiratory distress syndrome), children with life-threatening heart defects, victims of road accidents or domestic accidents (third-degree burns, poisoning, choking), children involved in near-drowning episodes, and those who have just undergone major surgery, including some requiring extracorporeal life support. Neonates suffering from necrotizing enterocolitis, bowel obstruction, oesophageal atresia, tracheo-oesophageal fistulae and other congenital anomalies are also frequently treated in such units.

Almost all newborn in any PICU will be fitted with an intravenous catheter for delivering fluids and medications - usually in the hands or arms, but sometimes in the lower limbs, or even in the scalp. An IV catheter is a thin, flexible tube inserted into the vein by means of a small needle. Once in the vein, the needle is removed, leaving just the soft plastic tubing in place. Some situations require larger catheters known as central lines, in that they are inserted into the larger, more central veins of the chest, neck or groin, as opposed to the extremities.

Most medicines can be administered in any hospital ward, but certain IV medications capable of inducing distinctly dangerous side effects can only be administered to children who are closely monitored in the PICU. Instead of receiving injections every few hours, the children are administered these drugs continuously, several drops at a time, in what are known as drips.

Children are invariably attached to monitors while in the PICU and the latter are secured to the chest with painless wired devices designed to count their heart rate and breathing rate. Many neonates are also connected to a pulse oximetry machine* attached to the fingers or toes like a small bandage and emitting a soft red light; its purpose is to check blood oxygen levels. Unless blood pressure is being directly monitored through an arterial catheter, the child will usually have a blood pressure cuff in place as well.

Throughout the course of caring for a sick child, doctors may need to perform a battery of laboratory tests (blood, urine, cerebrospinal fluid) and imaging tests (such as X-rays, ultrasound, CAT scans, magnetic resonance imaging) in order to obtain further information about the child's condition.

Children in the PICU sometimes require extra help with breathing. In such cases the child will be connected to a ventilator via an endotracheal tube inserted into the windpipe through the mouth or nose or via a tracheostomy, which involves directly inserting a plastic tube transcutaneously into the trachea. Different pathological conditions call for different types of ventilators.

* **pulso-ossimetro**

SEROTONIN

Also called 5-HYDROXYTRYPTAMINE, a chemical substance that is derived from the amino acid tryptophan. It occurs in brain, intestinal tissue, blood platelets and mast cells, and is a constituent of many venoms, including wasp venom and toad venom. Serotonin is a potent vasoconstrictor and functions as a neurotransmitter. It is localized in distinct regions of the brain, and changes in its concentration are connected with mental states such as depression and anxiety. Some drugs, used as tranquillizers, cause release of serotonin from storage granules at nerve endings. The hallucinogenic compound LSD may act by inhibiting the action of serotonin.
LSD is related structurally to several other drugs, all of which can block the action of serotonin (the indole amine transmitter of nerve impulses) in brain tissue. LSD produces marked deviations from normal behaviour, which probably are consequences of its ability to antagonize serotonin. Because of that ability LSD has been used in medicine to induce mental states that resemble those of actual psychotic diseases (primarily the schizophrenias).

Certain investigators have postulated that a deficiency of serotonin may be responsible for the schizophrenia psychosis, though actual studies have yielded contradictory results.

Evidence indicates that D-state sleep is associated with a mechanism involving a bodily chemical called norepinephrine; other stages of sleep seem to involve another chemical (serotonin) in the brain.
It is further observed that the neurohumour serotonin is localized in the brainstem regions presumed to be responsible for NREM sleep; that destruction of serotonin-containing nerve cells in the brainstem may produce insomnia; that, in some species, reductions of serotonin by chemical interference with its production produces an amount of sleep loss with the serotonin reduction; that administration of a serotonin precursor (a substance from which serotonin is formed) produces a sleep-like state and that artificially induced increases in brain serotonin increase NREM sleep.

Serotonin may have immediate emotional effects. An increase of serotonin that follows introduction of its biochemical precursor into the brain generates signs of ecstasy and euphoria. Drugs that mimic the effects of serotonin have analogous chemical structures and produce excitement, hallucination and agitation; drugs that are serotonin antagonists tend to generate feelings of depression. Psilocybin (found in certain mushrooms), used in Yucatan for centuries to induce trance states, and lysergic acid diethylamide are serotonin-like. Antagonists include the tranquillizers reserpine and chlorpromazine.

In man, the pineal is a pear-shaped midline structure located at the back of the base of the brain. It becomes calcified by the sixth decade in about 70 percent of the population. In the past, a variety of roles has been tentatively assigned to the pineal, including the regulation of growth, the size of the endocrine organs, sexual maturation, blood sugar levels and skin pigmentation. Attempts have also been made to implicate it in psychoses and epilepsy. Serotonin and metabolites such as 5-hydroxyindoleacetic acid and 5-methoxyindoleacetic acid have been demonstrated in extracts of the pineal.
In higher vertebrates, beginning with amphibians, the pineal gland has secretory functions, and in mammals, it is exclusively a secretory organ, producing from an amino acid (tryptophan) the compound serotonin (5-hydroxytryptamine or 5-HT) and a derivative of serotonin called melatonin. Serotonin is widely distributed in animals, especially in the brain and alimentary tract of vertebrates; it may function as a neurohumour in the invertebrate mollusks, but its significance in other animals is not yet certain.

At the same time the urine is enriched with 5-hydroxyindoleacetic acid, which may be derived from oxidation of indoleacetic acid or from increased metabolism of serotonin, a substance in the brain that plays a role in the transmission of nerve impulses and may be involved in the action of psychotomimetic drugs.

Platelets are capable of removing from the plasma and storing in high concentrations certain chemical agents, including serotonin, a substance that causes constriction of small blood vessels. Serotonin is rapidly released when platelets aggregate and probably plays a part in control of bleeding by reducing the size of injured vessels.

Serotonin may also be a bronchoconstrictor.

Argentaffin cells are round or partly flattened cells occurring in the lining tissue of the digestive tract and containing granules thought to be of secretory function. These epithelial cells, though common throughout the digestive tract, are most concentrated in the small intestine and appendix. The cells locate randomly within the mucous membrane lining of the intestine and in tube-like depressions in that lining known as the Lieberkühn glands. Their granules contain a chemical called serotonin, which stimulates smooth muscle contractions. Functionally, it is believed that serotonin diffuses out of the digestive tract, where neurons leading to the muscles are stimulated to produce the wavelike contractions of peristalsis. Peristaltic movements encourage the passage of food substances through the intestinal tract.

It has been known for about 30 years that one particular neurotransmitter - serotonin - is involved in migraine attack. There is an increase in its breakdown product (5-HIAA) in the urine following an attack. Nearly all the serotonin in the blood resides in the platelet, a cellular constituent that aggregates and breaks down (platelet release action) during a migraine attack. Because of this, one theory for migraine was that it was primarily a platelet disorder, a view now not widely accepted. It was these alterations in serotonin during an attack that seemed to account for the efficacy of antiserotoninergic drugs. The recent exciting advance involves serotonin or 5-HT, which consists of three main types according to the types of serotonin receptors - 5-HT_1, 5-HT_2 and 5-HT_3, each of which has subtypes. There are now drugs that can be targeted specifically at these receptor subtypes. They can dramatically abort the headache and sickness of an acute migraine attack. They are the greatest advance in migraine therapy in many years, and some of these drugs should become generally available after 1991. Precisely how they work is still a subject of intense investigation, but they are likely not only to relieve the sufferer's pain but also to help unravel the enigma of migraine.

Two prescription medications have been introduced which may be helpful in the treatment of overweight individuals. Both act by releasing or increasing serotonin concentrations. Serotonin apparently affects the appetite-control centre of the brain, which controls satiety; the higher level of serotonin therefore reduces food intake and body weight in bulimia patients. A specular role may obviously also be postulated in anxiety-associated anorexia nervosa.

The serotonin derivative, ondansetron, proves to be a very effective anti-emetic agent, capable of considerably enhancing the quality of life of terminal cancer patients under chemotherapy.

Serotonin is also known to play an important role in obsessive compulsive disease (OCD), such as compulsive gambling or shopping. Clearly, research is warranted regarding a hypothetical role for serotonin in drug addiction.

UNIVERSITY OF VERONA - FACULTY OF MEDICINE

ENGLISH TRANSLATION EXAMINATION

15th February 1990

Translate all 10 passages into Italian. The time allowed is 3 hours.

Passage 1

Almost equally uncommon is an annular carcinoma, the lower edge of which is felt by the examining finger as a complete ring of growth. If the growth lies low enough down and is not too tightly constricting, the tip of the finger can be inserted into its lumen, feeling its concave ulcerated walls, and even, in favourable circumstances, reaching the upper edge of the lesion or the rectal mucosa above it. If, however, the growth is situated at a higher level the fingertip may barely engage in it as it projects downwards rather like the cervix uteri, and may not be able to trace the normal rectal mucosa up to its junction with the growth.

Passage 2

The fact is that there is no way of precisely identifying the effective morphological situation of the walls of the airways in these patients. We know, for instance, that inflammatory processes, even of fairly brief duration, may cause large-scale upheavals in the bronchial walls, impairing muscular tone and thus calibre regulation. These are subjects whose pulmonary parenchyma has often lost, or suffered a substantial reduction in, structural elasticity with the result that the bronchial walls no longer form part of an elastic structure and may be prone to dynamic expiratory collapse due to lack of structural support.

Passage 3

An enduring controversy erupted once again this year as to whether physicians should ever kill a patient, no matter how merciful the intent. A brief anonymous article entitled "It's Over, Debbie" appeared in JAMA. Written in the first person, the article tells of an exhausted resident physician who was summoned to the bedside of Debbie, a 20-year-old woman dying painfully of ovarian cancer. She had not slept or eaten in two days, retched frequently (possibly owing to medication), and was having difficulty breathing. When the physician, who had never before met her, entered the room, Debbie said, "Let's get this over with". The physician gave her a shot of morphine with the apparent intent of killing her. She died within a few minutes.

Passage 4

The person with mild to moderate congestive heart failure may have a heart that has an adequate pumping function for the demands at rest, but that is unable to meet circulatory needs under stress. Such a person may experience difficulty in breathing during exertion in addition to other early manifestations of heart failure, and these symptoms might even be present to a limited extent at rest. In those situations affecting primarily the left ventricle, episodes of paroxysmal nocturnal dyspnoea indicating temporary inadequacy of the left ventricle may occur. There may be mild oedema of the ankles at the end of the day. The manifestations are not severe or grossly disabling.

Passage 5

The breasts, unlike most of the other organs, continue to increase in size. Although mammary growth begins during pregnancy under the influence of ovarian and placental hormones and some milk is formed, copious milk secretion sets in only after delivery. Since lactation ensues after a premature birth, it would appear that milk production is held back during pregnancy. The mechanism by which this inhibitory effect is brought about, or by which lactation is initiated at delivery, has long been the subject of an argument that revolves around the opposing actions of oestrogen, progesterone and prolactin, as studied in laboratory animals, goats and cattle.

Passage 6

Why did Pasteur choose to work on rabies, and why was an institution conceived to fight against the disease? Rabies was a microbial disease of secondary importance in France at the end of the 19th century (it was responsible for far fewer deaths than tuberculosis or diphtheria). Nonetheless, it was a disease causing a horrible form of death, and the research Pasteur undertook in 1882 on the treatment of rabies proved to be the most spectacular of all his work. Having detected the rabies virus by its insidious and destructive effects on the nervous system, and having attenuated its virulence, on July 6, 1885, Pasteur boldly applied his procedure to a human, vaccinating and saving the life of nine-year-old Joseph Meister.

Passage 7

The human skull that encases the brain is remarkably structured in weight, contour, cavities, depressions and openings for the exit and entry of nerves carrying an almost infinite variety of motor and sensory messages to and from the various organs via other parts of the nervous system. The bony spinal column, extending caudally from the skull, normally comprises 30-33 individual bones linked together by fine, multiple, criss-crossing ligaments and intervertebral cartilage that permit great mobility (except at the lower end, where the column is relatively fixed as it joins the pelvis). The vertebrae are so structured in curves, configurations and facets as to allow considerable flexibility of movement while still bearing the stress of erect posture and body weight.

Passage 8

It all began in 1928 when research chemist Albert Hofmann isolated the chemical molecule called lysergic acid diethylamide. In an effort to understand their valuable medical properties, Dr. Hofmann had been studying a class of chemicals derived from the fungus ergot. More specifically, he was trying to synthesize properties like caffeine when, at the twenty-fifth try, he came up with LSD. When Dr. Hofmann prepared a fresh batch one April day, he accidentally touched a moistened finger to his tongue. At a recent seminar on pharmacology he described what happened next: "I was forced to stop work and go home because I was seized by a peculiar restlessness. I sank into a kind of drunkenness which was accompanied by an uninterrupted storm of fantastic images - a kaleidoscopic display of colours".

Ergot = segala cornuta

Passage 9

Low rectal tumours are unsuitable for anterior resection, as are tumours found at operation to have extensive irremovable local pelvic dissemination; in such cases local relapse is unavoidable and would lead to obstruction and distressing symptoms. A pre-operative biopsy that shows an anaplastic or very undifferentiated tumour of high malignancy is not now regarded as an absolute contra-indication to anterior resection. Nevertheless, such tumours spread more rapidly and widely within the pelvis and are more likely to permeate lymphatics and fat distal to the tumour. Thus, a wide local clearance and a 5 cm distal margin should be provided in dealing with high-grade tumours.

Passage 10

Table 1. Specific physical manifestations of the battered-child syndrome.

1. Intracranial bleeding due to brain damage.
2. Evidence of violent shaking or whip-lash injuries.
3. Skull fractures.
4. Bodily bruises, often resembling the shape of an object.
5. Human bite marks or cigarette burns.
6. Hair loss and subgaleal haematomas caused by severe hair pulling.
7. Genital wounds caused by biting or tying the penis in an attempt to prevent bed-wetting, and hypernatraemic dehydration caused by withholding of urine.
8. Tears in the floor of the mouth due to forced feeding.
9. Repeated poisoning.
10. X-ray findings of repeated bone injury.

Complexity of diseases

In an initial approach to the question of complexity we can take as our starting point a reflection, which is only apparently theoretical, on the nature of disease in general. These considerations are theoretical only in appearance because *it is inevitable that the diagnostic and therapeutic approach to disease depends on the concept one has of it* in general, on the theoretical and "philosophical" plane, rather than in its individual details. This is all the more true for those who seek to reason and act within a holistic rather than a specialistic conceptual frame of reference.

Disease, in essence, is a disorder of structures and/or functions, with characteristic abnormalities at the cellular and molecular levels. The definition of disease inevitably depends on the standpoint (meaning not the personal opinion, but the perspective from which the matter is viewed) of those attempting to define it.Today, the standpoint of modern medicine, as conceived scientifically, is represented by molecular pathology, because the astonishing progress which has come about as a result of the introduction of molecular biology techniques, particularly in the analysis of proteins and nucleic acids, has led to an enormous increase in our knowledge of the molecular abnormalities (both quantitative and qualitative) present in many diseases, whether hereditary or acquired. This new molecular-based knowledge of many diseases is beginning to have significant positive repercussions in terms of diagnosis and a more rational utilization of drugs. It has been the task of the molecular approach to clarify the biological basis of disease, and this will continue to be the case for many years to come. In view of the variety of possible pathological situations at this level, it is a task which is several degrees of magnitude greater than that performed in the past by pathological anatomy at organ or cell level.

The problem of an exhaustive and satisfactory definition of the concept of disease cannot be solved merely on the basis of a knowledge of molecular biology, however detailed that may be. The great increase in the "extent" of our knowledge is not enough to guarantee an "intensive" understanding of the deeper meaning which the abnormalities observed have in the dynamics of the onset and development of a disease process. Any satisfactory description of the nature of disease necessarily entails a search for the causes (etiology) and the mechanisms (pathogenesis), or, in other words, the "why" and "how" the disease process sets in and develops. The search for causes will be successful when the causes are precise and usually confined to one or only a few physical, chemical or biological damaging factors, but encounters often insurmountable obstacles when the causes are multiple or when the disease originates from a series of causes in succession, each dependent upon the previous one. Establishing the pathogenesis requires the largest possible number of notions on the objective changes (whether anatomical, biochemical, molecular or electrophysiological), but also calls for identification of the cause-and-effect relationships and for the hierarchical ordering of phenomena in terms of space and time. Our attempt here is to outline an approach to the definition of disease based not so much and not exclusively on the molecular paradigm, but on a way of reasoning which takes account of new epistemological horizons.

Life is an expression of the complex behavior of nature. It is essentially the property of an open system in which information governs matter and energy, but without completely suppressing, and indeed often benefiting from, the chaotic element (the concepts of information and chaos will be dealt with in Chapter 5, Sections 5 and 7, respectively). Life is a meta-stable state: it maintains and reproduces itself as a thermodynamically far-from-equilibrium event, thanks to the exchange of energy and matter taking place between the living system and the environment. The fact that homeostatic biological systems exist which maintain certain parameters within suitable oscillation limits does not mean that the body or its subsystems are in a state of "equilibrium", but merely that the body is well organized and knows how to channel the *flow* of matter in a manner which is productive for life itself.

For instance, it is well known that there are very substantial differences in the concentrations of ions (sodium, potassium, hydrogen, calcium, magnesium, etc.) between the various cell compartments separated by biological membranes. The cells actually make use of these differences and asymmetries to generate signals, information, and even energy. Thus, the transmission of the nerve impulse depends on the imbalance between sodium and potassium across the fiber membrane; cell division requires a transfer of hydrogen ions from the intra- to the extracellular space (alkalinization of the cytoplasm), etc. The maintenance of health therefore consists in controlling a dysequilibrium.

Clearly, the state of good health cannot be maintained indefinitely and ageing is inevitable. This problem, too, has no simple explanation, entirely attributable to molecular parameters. As the neuropharmacologist M. Trabucchi says: To the former group belong the experiments, mainly conducted in animals, on the basis of which a number of environmental characteristics are reflected in simple parameters of neuronal functioning (dendritic arborization, number of synapses, etc.); to the second group belong those series of events which can be characterized by the theme of complexity, whereby enormously variable external stimuli are interpreted via various man-environment interfaces and translated into highly differentiated biological and personal realities».

At the opposite extreme to the organization of life is death, which therefore represents the maximum disorder, dissipation of information, and increase in entropy, tending towards thermodynamic equilibrium. Disease lies somewhere between the two, consisting in partial disorder of systems of information, energy, and matter, localized in space and time.

When reflecting upon the question of disease, one problem which immediately springs to mind is understanding which of the various events observed are primary and which secondary: not everything in the disease process is pathological, in the sense that it is damaging. Disease is disorder, but it nevertheless obeys certain laws, and thus embodies some measure of order, though this is conditioned by chance events. The homeostatic biological systems which govern health are the same that cause most pathological phenomena, when activated inadequately, excessively or unsuitably.

MOCK TRANSLATION EXAMINATION

10 May 2007

Time allowed: 90 minutes.

Chicken-pox is the common name for *Varicella zoster*, classically one of the childhood infectious diseases caught and survived by most children. Chickenpox is caused by the human herpes virus 3, one of the eight herpes viruses known to affect humans. It starts with conjunctival and catarrhal symptoms and then characteristic spots (papules) appearing in two or three waves, mainly on the body and head rather than the hands and becoming small itchy open sores which heal mostly without scarring. Chickenpox has a 10-14 day incubation period and is highly contagious through physical contact two days before symptoms appear. Following primary infection there is usually lifelong protective immunity from further episodes of the disease. Recurrent chickenpox is fairly rare but more likely in people with compromised immune systems. Symptomatic treatment to ease itching and reduce fever is widely used. Chickenpox is rarely fatal (deaths are usually due to pneumonia), with pregnant women and those with suppressed immune systems being more at risk. Pregnant women not known to be immune and who come into contact with chickenpox may need urgent treatment as the virus can cause serious birth defects. This is less of an issue after 20 weeks. Later in life, viruses remaining dormant in the nerves can reactivate, causing localised eruptions of shingles. This occurs particularly in people with compromised immune systems, such as the elderly, and perhaps even those suffering sunburn. Unlike chickenpox which normally resolves completely, shingles may result in persisting post-herpetic neuralgia pain. Chickenpox spreads from person to person by direct contact or through the air from an infected person's coughing or sneezing. Touching the fluid from a chickenpox blister can also spread the disease. A person with chickenpox is contagious from 1-2 days before the rash appears until all blisters have formed scabs. This may take 5-9 days. It takes from 10-21 days after contact with an infected person for someone to develop chickenpox. The chickenpox lesions start as 2–4 mm red papules which develop an irregular outline (rose petal). A thin-walled, clear vesicle (dew drop) develops on top of the area of redness. This "dew drop on a rose petal" lesion is very characteristic for chickenpox. After about 8–12 hours the fluid in the vesicle gets cloudy and the vesicle breaks leaving a crust. The fluid is highly contagious, but once the lesion forms a crust, it is no longer regarded as contagious. The crust usually falls off after 7 days sometimes leaving a crater-like scar. Although one lesion goes through this complete cycle in roughly 7 days, another hallmark of chickenpox is the fact that new lesions appear every day for several days. Therefore, it may take about a week until new lesions stop appearing and existing lesions form complete crusts.

Vocabulary:

itchy = pruriginoso, sore = piaga, scarring = cicatrizzazione, scar = cicatrice, lifelong = permanent, issue = problem, shingles = herpes zoster = fuoco di Sant' Antonio, elderly = anziani, spread = diffondersi, blister = vescicola, cough = tossire, sneeze = starnutire, scab = crust = crosta, papules = papule, outline = profilo, dew drop = goccia di rugiada, cloudy = torbido, crater = cratere, hallmark = segno caratteristico

MOCK TRANSLATION EXAMINATION
16 December 2005

Time allowed: 30 minutes

Transmission of smallpox is by prolonged face-to-face contact, direct contact with infected body fluids or contaminated objects, and rarely, by a virus in the air of enclosed spaces. Infection will be via the lungs. The incubation period to obvious disease is around 12 days. In the initial growth phase the virus seems to move from cell to cell, but around the 12th day, lysis of many infected cells occurs and the virus will be found in the bloodstream in large numbers. The initial or prodromal symptoms are essentially similar to other viral diseases such as influenza and the common cold – fevers, muscle pain, stomach aches, etc. The digestive tract is commonly involved, leading to vomiting. Most cases will be prostrated.

Smallpox virus preferentially attacks skin cells and by days 14-15, smallpox infection becomes obvious. The attack on skin cells causes the characteristic macules associated with the disease. The macules tend to erupt first in the mouth, then the arms and the hands, and later the rest of the body. At that point they should still be fairly small. This is the stage at which the victim is most contagious.

By days 15-16 the condition worsens - at this point the disease can take two vastly different courses. The first form is classical ordinary smallpox, in which the macules grow into papules, and then fill up with pus (turning them into pustules). Ordinary smallpox generally takes one of two basic courses. In discrete ordinary smallpox, the pustules stand out on the skin separately - there is a greater chance of surviving this form. In *confluent* ordinary smallpox, the blisters merge together and begin to detach the outer layers of skin from the underlying flesh - this form is usually fatal. If a victim of ordinary smallpox survives for the course of the disease, the pustules will deflate in time, and will start to dry up, usually beginning on day 28. Eventually the pustules will completely dry and start to flake off. Once all of the pustules flake off, the patient is considered cured.

In haemorrhagic smallpox, a mortality rate of 96 percent has been reported. An entirely different set of symptoms starts to develop. The skin does not blister, but remains smooth. Instead, bleeding will occur under the skin, making the skin look charred and black. The eyes will also haemorrhage, making the whites of the eyes turn deep red (and, if the victim lives long enough, eventually black). At the same time, bleeding begins in the organs. Death may occur from bleeding (fatal loss of blood or by other causes such as brain haemorrhage), or from loss of fluid. The entry of other infectious organisms, since the skin and intestine are no longer a barrier, can also lead to multi-organ failure. This form of smallpox occurs in 3-25% of fatal cases (depending on the virulence of the strain).

Nota: **prodromal = prodromico** **blister = vescica o crosta**

deflate = sgonfiarsi **flake off = cadere**

UNIVERSITY OF VERONA - FACULTY OF MEDICINE

ENGLISH TRANSLATION EXAMINATION

15th February 1990

Translate all 10 passages into Italian. The time allowed is 3 hours.

Passage 1

Almost equally uncommon is an annular carcinoma, the lower edge of which is felt by the examining finger as a complete ring of growth. If the growth lies low enough down and is not too tightly constricting, the tip of the finger can be inserted into its lumen, feeling its concave ulcerated walls, and even, in favourable circumstances, reaching the upper edge of the lesion or the rectal mucosa above it. If, however, the growth is situated at a higher level the fingertip may barely engage in it as it projects downwards rather like the cervix uteri, and may not be able to trace the normal rectal mucosa up to its junction with the growth.

Passage 2

The fact is that there is no way of precisely identifying the effective morphological situation of the walls of the airways in these patients. We know, for instance, that inflammatory processes, even of fairly brief duration, may cause large-scale upheavals in the bronchial walls, impairing muscular tone and thus calibre regulation. These are subjects whose pulmonary parenchyma has often lost, or suffered a substantial reduction in, structural elasticity with the result that the bronchial walls no longer form part of an elastic structure and may be prone to dynamic expiratory collapse due to lack of structural support.

Passage 3

An enduring controversy erupted once again this year as to whether physicians should ever kill a patient, no matter how merciful the intent. A brief anonymous article entitled "It's Over, Debbie" appeared in JAMA. Written in the first person, the article tells of an exhausted resident physician who was summoned to the bedside of Debbie, a 20-year-old woman dying painfully of ovarian cancer. She had not slept or eaten in two days, retched frequently (possibly owing to medication), and was having difficulty breathing. When the physician, who had never before met her, entered the room, Debbie said, "Let's get this over with". The physician gave her a shot of morphine with the apparent intent of killing her. She died within a few minutes.

Passage 4

The person with mild to moderate congestive heart failure may have a heart that has an adequate pumping function for the demands at rest, but that is unable to meet circulatory needs under stress. Such a person may experience difficulty in breathing during exertion in addition to other early manifestations of heart failure, and these symptoms might even be present to a limited extent at rest. In those situations affecting primarily the left ventricle, episodes of paroxysmal nocturnal dyspnoea indicating temporary inadequacy of the left ventricle may occur. There may be mild oedema of the ankles at the end of the day. The manifestations are not severe or grossly disabling.

Passage 5

The breasts, unlike most of the other organs, continue to increase in size. Although mammary growth begins during pregnancy under the influence of ovarian and placental hormones and some milk is formed, copious milk secretion sets in only after delivery. Since lactation ensues after a premature birth, it would appear that milk production is held back during pregnancy. The mechanism by which this inhibitory effect is brought about, or by which lactation is initiated at delivery, has long been the subject of an argument that revolves around the opposing actions of oestrogen, progesterone and prolactin, as studied in laboratory animals, goats and cattle.

Passage 6

Why did Pasteur choose to work on rabies, and why was an institution conceived to fight against the disease? Rabies was a microbial disease of secondary importance in France at the end of the 19th century (it was responsible for far fewer deaths than tuberculosis or diphtheria). Nonetheless, it was a disease causing a horrible form of death, and the research Pasteur undertook in 1882 on the treatment of rabies proved to be the most spectacular of all his work. Having detected the rabies virus by its insidious and destructive effects on the nervous system, and having attenuated its virulence, on July 6, 1885, Pasteur boldly applied his procedure to a human, vaccinating and saving the life of nine-year-old Joseph Meister.

Passage 7

The human skull that encases the brain is remarkably structured in weight, contour, cavities, depressions and openings for the exit and entry of nerves carrying an almost infinite variety of motor and sensory messages to and from the various organs via other parts of the nervous system. The bony spinal column, extending caudally from the skull, normally comprises 30-33 individual bones linked together by fine, multiple, criss-crossing ligaments and intervertebral cartilage that permit great mobility (except at the lower end, where the column is relatively fixed as it joins the pelvis). The vertebrae are so structured in curves, configurations and facets as to allow considerable flexibility of movement while still bearing the stress of erect posture and body weight.

We describe a case of suicide put into effect by means of a "complex" mode of self-inflicted injury, consisting in asphyxia due to hanging and in burning with extensive charring of the body. The case is worthy of attention in its own right and also in view of the paucity of specific reports in the forensic literature. Particularly interesting, for the purposes of establishing the cause of death, is the assessment of the chronology of the self-destructive acts chosen by the victim, also in relation to the associated psychodynamic aspects of the case.

Description of the case

In August 1997, the corpse of a 30-year-old man, with a history of drug addiction, a broken marriage and pharmacological treatment for depression, was found in a warehouse belonging to the family and used as a workshop, which was totally destroyed by an extensive fire that broke out in several points and was immediately identified as having been started deliberately. The corpse was lying supine, partially carbonised, with the right portion of the trunk covered by a metal structure, probably a cupboard which had fallen onto the victim. In the course of the on-the-spot investigation, a length of hemp rope was found tied to the lower part of a railing overlooking the workshop where the corpse was discovered. Beside the corpse was a partially broken, blackened glass bottle. A standard total body roentgenographic investigation was conducted preliminarily for the purposes of identification and traumatological diagnosis at the beginning of the autopsy examination. The aforementioned investigations revealed no metal or radio-opaque foreign bodies attributable to bullets, nor any fractures of the skull or limbs attributable to possible traumatic actions on the part of others. Numerous metal fragments of no real significance were noted which were put down to the devastation of the workshop as a result of the fire.

The autopsy, together with the circumstantial findings, enabled us to rule out the possibility that someone other than the victim himself might have acted in some way to bring about his death.

At external inspection, the cadaver was found to be partially carbonised, with the tongue protruding and clamped between the teeth and the nose presenting a mushroom of dry foam.

Around the neck was a hard, white band-like structure of plastic consistency which tightly encircled the neck and was partly fused with a necklet of yellow metal and with a mass of ferrous material. Beneath this fused structure was visible a plaited hemp rope, of the same type as the length of rope found on the spot, measuring 1.2 cm in diameter, with a 27.5 cm long noose, with a slip-knot in the left anterocervical region, which had caused the formation of a patterned groove as a result of the negative imprint of the fibres, deeper in the nuchal region, and running almost horizontally.

The upper limbs were in the classic position of the "boxer", with the forearms bent back against the upper arms and the fists clenched. The lower limbs presented partial skeletisation of the femurs and of the left leg, disarticulation of the right knee and amputation of the feet.

The charring of the head was complete, with no evidence of fractures, while the trunk presented extensive décollement of the left hemithorax anterolaterally and of the abdomen with exposure of the rectus muscles, liver and intestinal loops on the right, due to loss of soft tissues and breakage of charred bones. Male external genitalia were recognisable. Small patches of intact skin were present on the back and buttocks in the areas in contact with the ground.

At dissection of the cadaver, cerebral oedema was observed, together with haemorrhagic infiltration of the subcutaneous and muscular layers of the neck, particularly bilaterally alongside the trachea, starting from the first ring, with formation of a seepage haematoma; signs of haemorrhagic infiltration at the level of the cricoid cartilage; a lenticular area of ecchymotic suffusion close to the right carotid bifurcation; praetermotility of the hyoid bone on the right, in the paramedian position, without fractures or infiltration. At vertebral level, a fracture line was detected in the disc between C_5 and C_6 with haemorrhagic infiltration of the lower margin. In the chest, a large fragment of glass was found in the right pleural cavity; examination of the trachea revealed no macroscopic phenomena worthy of note, and no soot was detectable on the internal surface; there was frank congestion of the pulmonary parenchyma, except for the right superior and middle lobes which were completely carbonised.The intra-abdominal organs were partially carbonised.

The remaining autopsy findings were of no interest and are not described here.

The picture of pulmonary congestion and oedema was confirmed by the histological findings which revealed the presence of optically empty cyclic areas in the lung in the context of alveolae full of amorphous matter, with thickened septa infiltrated by red blood cell cytoskeletons.

As regards the toxicological examination data, the serum carboxy-haemoglobin value was 6% and tests for common drug abuse substances yielded negative findings.

Part 1

Damage to cardiac muscle caused by a heart attack gets progressively worse. Unlike liver or skin, heart tissue cannot regenerate, so the scar left after a heart attack remains a non-contractile dead zone. By impeding the heart muscle's synchronous contractions, the scar, known as an infarct, also increases the strain on the healthy parts of the muscle, thus leading to further cell death and deformation of the cardiac wall. This cycle can cause an infarct to double in size within just months.

Medical interventions are allowing more and more people to survive the crisis of a heart attack, but at least a third of these will experience the subsequent steady weakening of their injured hearts, termed heart failure, for which there is only one cure at present: transplantation – a complicated, expensive procedure limited by the severe shortage of donors. Last year in the U.S., for instance, more than 550,000 new cases of heart failure were diagnosed, yet only about 2,000 transplants were performed. For the remaining patients, the quality of life steadily erodes, and less than 40% will survive 5 years after the initial attack.

If physicians could repair an infarct, or even just halt its expansion, they would be able to lengthen millions of lives. Therefore, building a patch of living human heart tissue has become one of the most urgent goals in tissue engineering. Cardiac muscle fibres have to form physical and neural connections in order to conduct the electrical signals that allow them to synchronize contractions. Skin and cartilage are far less complex, and growing them in the laboratory is also simpler because those tissues do not require internal vasculature. For thicker structures like heart muscle, finding a way to integrate the requisite blood supply into a three-dimensional piece of tissue remains a major obstacle.

Attempts have been made to regrow heart tissue in an infarct zone by transplanting stem cells from other tissues, such as bone marrow or skeletal muscle, but trials have shown that most stem cells fail to survive the transplant.

Part 2

According to the hygiene hypothesis, the rapidly rising rates of asthma, hay fever, eczema and other allergies recorded over the past two decades have resulted from the excessively hygienic conditions existing in industrial countries. Because children are now exposed to fewer bacteria and viruses, their immune systems are thought to overreact to otherwise harmless substances such as pollen. This hypothesis, however, fails to explain why some people are more susceptible than others or why those living in dirty environments still develop asthma.

A recently conducted genetic study has come up with a plausible mechanism for allergy development: it suggests that the hepatitis A virus (HAV), a fairly common organism that proves more virulent in polluted environments, may actually protect people from asthma. Recognizing that allergies tend to present a genetic component, a research team at Stanford University decided to look for such a component. "We knew that finding a gene for susceptibility to asthma in humans would be a formidable task, so we simplified the problem by using a mouse model", said the team leader. They identified one gene, TIM-1, that predisposed mice to asthma. Surprisingly, however, it emerged that TIM-1 is also the receptor used by the hepatitis A virus to infect human cells.

Paolo Matricardi, now at the Bambin Gesù Children's Hospital in Rome, had previously discovered that allergies occur much less often among populations exposed to HAV. This form of hepatitis spreads by exposure to the faeces of an infected person and causes jaundice and flu-like symptoms. The illness clears up spontaneously in most cases.

The Stanford team found that humans carry either a long or a short variant of TIM-1. In a sample of 375 people, the researchers saw that those who carry the long version and who had been infected with HAV were 75% less likely to suffer from asthma than those with the shorter version. Protection thus seemed to depend on inheriting the right version of the TIM-1 gene and on having experienced an episode of HAV infection.

VERONA UNIVERSITY FACULTY OF MEDICINE

ENGLISH TRANSLATION EXAMINATION

20th December 2005

Translate both the following passages into Italian. The time allowed is 2 hours and 10 minutes. Please write your translations on alternate lines on separate sheets of paper, leaving a reasonable margin on the right-hand side. Please put your name and matriculation number on each sheet. Do not give alternative translations in brackets. You are strongly advised to allot approximately one hour (± 10 minutes) to each part.

Part 1

Gallstones form when liquid stored in the gallbladder hardens into pieces of stone-like material. The liquid called bile is used to help the body digest fats. Bile is made in the liver, then stored in the gallbladder until the body needs to digest fat. At that time, the gallbladder contracts and pushes the bile into a tube called the common bile duct that conveys it to the small intestine, where it helps with digestion. Bile contains water, cholesterol, fats, bile salts, proteins, and bilirubin. Bile salts break up fat, and bilirubin gives bile and stool a yellowish colour. The two types of gallstones are cholesterol stones and pigment stones. Cholesterol stones are usually yellow-green and are made primarily of hardened cholesterol. They account for some 80 percent of all gallstones. Pigment stones are small, dark stones made of bilirubin. Gallstones can be as small as a grain of sand or even as large as a golf ball. The gallbladder can develop just one large stone, hundreds of tiny stones, or almost any combination of these. Gallstones can block the normal flow of bile if they lodge in any of the ducts that carry bile from the liver to the small intestine. Bile trapped in these ducts can cause inflammation in the gallbladder, the ducts, or, rarely, the liver. If a gallstone blocks the opening to the pancreatic duct, digestive enzymes may become trapped in the pancreas and cause an extremely painful inflammatory condition called gallstone pancreatitis. Should any of the ducts remain blocked for a significant period of time, severe - possibly fatal - damage or infections affecting the gallbladder, liver, or pancreas can occur. Warning signs of a serious problem are fever, jaundice, and persistent pain. Many gallstones, especially silent stones, are discovered by accident during tests for other problems. But when gallstones are suspected to be the cause of symptoms, the doctor is likely to do an ultrasound exam that uses sound waves to create images of organs.

N.B. stool = feci pigment stones = calcoli pigmentati

UNIVERSITY OF VERONA - FACULTY OF MEDICINE
ENGLISH TRANSLATION EXAMINATION

21st September 1990

Translate the following passage into Italian. The time allowed is 2 hours.

This decrease in cardiac output and cardiac work, which occurs in spite of the continued needs of the fetus and of the mother's own tissues for blood-borne oxygen and nutriments, is accounted for by the more efficient way that the tissues draw on the mother's blood for oxygen and nourishment during the last few weeks of pregnancy.

The position of the heart is changed to a greater or lesser extent during pregnancy. As the uterus enlarges it elevates the diaphragm. This in turn pushes the heart upward, to the left, and somewhat forward, so that it is nearer the chest wall beneath the breast. Near the end of gestation the large womb may raise the heart until the latter lies almost at a right angle to the long axis of the mother's body. These changes, which also bring some rotation of the heart, vary considerably in different individuals. When present to a marked degree, they may give an examining physician the mistaken impression that a normal heart is appreciably enlarged. Actually, despite its greater work load, a healthy heart enlarges little or not at all even during the midportion of pregnancy, when the load is greatest.

Changes in the position of the heart, the greater work load, the increased volume of blood that the heart expels per beat, the decreased viscosity of the blood, and the larger amount of blood in the woman's blood vessels will, in many women, cause some distortion of the sounds that the physician hears when he listens to a patient's heart with his stethoscope. Such distorted sounds called "functional" murmurs (as distinct from "organic" murmurs), which may be present when the heart is diseased), do not indicate that anything is amiss, although they may be sufficiently atypical to cause the obstetrician to refer the patient to a cardiologist for assessment. Pregnancy sometimes produces minor changes in electrocardiographic findings, but these changes are within normal limits.

Such is the ability of the heart to respond to an increased work load that even the pregnant woman with serious heart disease, given proper care and without an unexpected complication, will usually go through her pregnancy and delivery without a catastrophe. She is likely, however, to encounter disaster when she tries to cope with the stress of caring for her family after the baby is born.

Normal pregnancy does not increase the mother's blood pressure. Indeed, a slight lowering of the blood pressure is commonly noted during the course of the pregnancy. Any notable rise in a pregnant woman's blood pressure is reason for alertness on the part of her physician, and if it continues to rise, for concern; it usually foretells the onset of toxemia (see below).

The pulse rate is a trifle more rapid during pregnancy, reflecting the more rapid heartbeat that is necessary in order to move the larger volume of blood present. The rate at which the blood flows through the myriads of small blood vessels in the skin (the peripheral circulation) is accelerated during pregnancy, leading to the elevated skin temperature, the tendency to sweat, and, in part, to the redness of the palms and the tiny dilated blood vessels in some women as their pregnancies progress.

The most notable change in the circulatory system during pregnancy, other than those described in the heart, is a slowing of the blood flow in the lower extremities. With this drop in the rate of flow there is a rise in the pressure within the veins and some stasis - stagnation - of the blood in the legs. These changes, which are believed to be due primarily to the pressure of the womb on the large blood vessels in the pelvis, are progressive during pregnancy.

VERONA UNIVERSITY FACULTY OF MEDICINE

ENGLISH TRANSLATION EXAMINATION

4th September 1997

Translate both the following passages into Italian. The time allowed is 2 hours. Please write the translations on alternate lines on separate sheets of paper. You are strongly advised to allot approximately one hour to each part.

Part 1

In asthma the airways become thickened on account of a combination of processes: the bronchial muscle surrounding the airway constricts, which narrows the bronchial lumen; the airway lining swells owing to fluid build-up and infiltration by immune system cells, and the airway secretes increased amounts of thick mucus, which clogs the narrower bronchioles.

During the normal process of inspiration, the chest wall moves outward and the diaphragm downward, thereby increasing the actual volume within the chest cavity. Owing to the outward pressure created by the movement of the rib cage, the airway actually widens as air flows from the bronchi through the bronchioles to the alveoli (tiny air pockets in the lungs where carbon dioxide and oxygen exchange takes place). Once inhalation has stopped, the diaphragm collapses, the ribs relax, and the chest cavity shrinks. At this stage the thickened asthmatic airways collapse and act as one-way valves: air is able to get through the airways during inhalation but then gets trapped and partially fills the lungs. Amazingly, an asthmatic can trap as much as two litres of air - enough to fill a basketball. Indeed, much of the discomfort of asthma is due to this air trapping.

Air exhaled through the narrowed airways becomes turbulent, giving rise to a wheezing sound. Listening to an asthmatic's chest, one can hear high-pitched wheezes that often sound as though many piccolos are being played inside the patient's chest. The presence of mucus accumulations complicates the asthmatic's breathing, bringing about coarse rales called rhonchi. Should the patient get very short of breath, the rush of air during inhalation will also cause wheezing. Yet the major problem is emptying the chest, and it is only when the air trapping is relieved and the wheezing and shortness of breath disappear that the patient feels well.

The incidence of asthma worldwide has more than doubled over the past twenty years or so. Even more alarming is the rising asthma death toll, despite the availability of better treatments, the sharpest rises being recorded among the elderly.

ENGLISH TRANSLATION EXAMINATION

Part 1

It ought to be quite unthinkable for a medical student to graduate without being thoroughly convinced of the paramount importance of regarding symptoms such as persistent constipation or diarrhoea, and the passage of blood in the motions of patients of middle age or over as due to carcinoma, pending evidence to the contrary. Yet, on entering practice, he seems to forget or disregard this advice all too soon, judging by the large numbers of patients with colorectal cancer who are mistakenly labelled as cases of 'piles' or 'colitis' by their physicians and, worse still, treated as such for 6 to 12 months or even longer. Some of them may actually have had a rectal palpation without the doctor detecting any lesion, since the growth will often lie far beyond the reach of his exploring finger.

As for the issue of earlier diagnosis, which would seem such a desirable aim, I feel I have to make it quite clear, however, that I regard most of the hopes that have been expressed of improvement in cancer treatment results, if earlier diagnosis could be achieved, as altogether too sanguine. Nearly all surgeons can recall cases of carcinoma, operated on within only a few weeks of onset of symptoms, where wide metastatic spread had already taken place, and it would appear likely that some active growths may be incurable almost from their onset. In more slowly growing lesions it may be that earlier diagnosis might enhance the prospects of cure somewhat, but these are often fairly good anyway even after considerable delay. I strongly suspect that, as a rule, the most important factor determining the outcome of treatment of a carcinoma is the histological type and activity of the malignancy rather than the time at which it is detected.

Part 2

Meningitis is a life-threatening disease; it frightens parents and doctors alike, on account of the rapidity with which the symptoms develop and its potentially fatal outcome. Bacterial meningitis is the most serious form of the disease, killing one in ten of its victims and leaving one in seven with long-term after-effects such as deafness or brain damage. Viral meningitis is far more common, but is usually less serious. Together, they account for some 3,000 infections and more than 500 deaths a year in Britain. The incidence of meningitis is highest among infants, declining among older children but rising again in teenagers. Adults are also at risk.

Teaching parents which symptoms to look out for is by no means a simple matter, since many of the early warning signs are fairly non-specific and broadly similar to those of relatively minor illnesses such as 'flu. Adults and older children feel off-colour and may develop a high temperature, whereas babies tend to become irritable and restless, to refuse their food and vomit. As the disease progresses, the patient develops a headache and often a stiff neck, due to inflammation of the meninges. He or she is likely to show a preference for darkness over bright lights.

It is important for parents to act quickly, according to the Meningitis Research Association, if their child shows persistent headaches, temperatures and vomiting. They should ask their general practitioner to examine the child, or else take it to the nearest casualty unit without delay. Bacterial meningitis can be cured with antibiotics providing they are administered soon enough.

There is no treatment for viral meningitis: the body must cure itself. Although as a rule it is not serious, when the symptoms are severe hospitalisation of the victim is mandatory so that doctors can confirm the diagnosis and determine which strain is involved by analysing a sample of cerebrospinal fluid.

MEDICAL TRIVIA

1. In which city are the headquarters of the World Health Organization located?
2. Which is the longest bone in the human body?
3. What is the name of the Italian Minister of Health?
4. Is a randomised controlled clinical trial a test or a study?
5. What do we call the substance devoid of specific therapeutic activity used for purposes of comparison in controlled clinical trials?
6. What is the opposite of a placebo?
7. Which part of the gastrointestinal system leads from the oral cavity to the stomach?
8. Which part of the body leads from the larynx to the bronchi?
9. What disease did Fausto Coppi die of?
10. What type of influenza killed 50 to 100 million people in 1918-1919?
11. In which country does the Food and Drugs Administration (FDA) operate?
12. In which organ of the human body is the pons located?
13. What do we call a specialist in gastrointestinal diseases?
14. If a drug is administered in doses of 250 mg q.i.d., how much of it is given in one day?
15. What do we call the instrument commonly used to measure blood pressure?
16. On which part of the body are the taste buds located?
17. What do we call the type of operation whereby a newborn is cut from the womb?
18. What is the name of the most famous medical journal published in the UK?
19. In a total gastrectomy which organ of the human body is entirely removed?
20. What do we call the instrument used to give an intravenous injection?
21. What is the name of the form of alternative medicine in which infinitesimally small doses of substances are administered?
22. Who performed the first human heart transplant?
23. Who received the 1962 Nobel Prize In Physiology or Medicine for their work on the structure of DNA?
24. Why did Rosalind Franklin who played an important part in that work not receive the Nobel Prize?
25. What is the name of the outlet from the stomach to the duodenum? The name comes from the Greek for a gatekeeper.
26. What is the better known name for epinephrine?
27. Which hormone is secreted by the isles of Langherhans in the pancreas?
28. What is the common name for the disease in which swelling of the parotid gland occurs?
29. If you are suffering from nephritis, which organ of the body is affected?
30. In the expression MRI, what does the letter "I" stand for?
31. What does the acronym JAMA stand for?
32. The microorganism *Yersinia pestis* is the causative pathogen of which disease?
33. By what disease were the patients affected in the film *Awakenings* starring Robin Williams and Robert De Niro?
34. Which glands of the body are responsible for perspiration?

35. What is an odynometer used to measure?
36. Angle-closure glaucoma is a disease of what organ of the body?
37. Is streptomycin a drug or a pathogen?
38. Where in the body is the anterior chamber located?
39. In what kind of hospital unit would you expect to find emergency resuscitation equipment?
40. In a footling presentation which part of the baby is delivered first?
41. What is the common name for bovine spongiform encephalopathy? And what is the scientific name for the variant in humans?
42. The tsetse fly is the vector of which well-known tropical disease?
43. In which organ of the human body can you find the incus and the stapes?
44. What do we call a specialist in the study and treatment of cancer?
45. In which body fluid are the platelets to be found?
46. mm Hg stands for millimetres of what?
47. What is the standard unit of measurement for heart rate?
48. What do we call the mechanism by which food is propelled along the digestive tract?
49. is a fistula a normal or abnormal communication between body structures?
50. MRSA is a very dangerous form of resistant *Staphylococcus aureus.* What does the letter "M" stand for?
51. What is it that subdivides in the process termed meiosis?
52. Another name for mucoviscidosis is CF. What is CF?
53. What is the short name commonly used for physiological sodium chloride solution?
54. Which part of the human intestine derives its name etymologically from the Latin word for "twelve each"?
55. Which would you define as a stoma – a colostomy or an artificial stomach?
56. In what part of the body will you find the sternocleidomastoid muscles?
57. Where was the first organised medical school in Europe established?
58. Who established the principle of protective vaccines in 1881?
59. What medical discipline addresses health problems in the workplace?
60. What disease did Dostoyevsky suffer from and describe in his novel *The Idiot.*
61. what do we call the study of the occurrence and distribution patterns of disease?
62. What medical specialisation does the abbreviation ENT stand for?
63. What does the suffix *-itis* indicate in words like meningitis, dermatitis, etc.?
64. What is the prominentia laryngea more commonly called, possibly as a mistranslation of the Hebrew "*tappuach ha adam*" meaning "male bump"?
65. What is the name of the lowest bone of the vertebral column, deriving from the Greek word for a cuckoo?
66. In the Shakespearean expression "In poison there is physic" (Henry IV, Part 2) what does the word "physic" mean?
67. Which other famous Shakespearean hero says: "Throw physic to the dogs, I'll none of it ...".
68. Which animals were used for centuries as bloodsuckers and are still used, for example, in osteoarthritic pain therapy?
69. What was the name of possibly the most infamous doctor in history as a result of his experiments at Auschwitz-Birkenau?

70. Which joint of the body connects the upper arm to the forearm?
71. AIDS is an STD. What is an STD?
72. What well-known STD was named after a shepherd who was supposed to be the first victim?
73. In which famous play by the great Norwegian dramatist Henrik Ibsen, does the hero suffer from hereditary syphilis and finally ask his mother for a dose of morphine to end his suffering and avoid dementia? The last words of the play are: "Mother, give me the sun!".
74. If you suffer from the "disease of kings", i.e. gout, which part of your body usually causes you pain?
75. Where is bile secreted and in which organ is it stored and concentrated?
76. What do we call a doctor who operates on the brain and nervous system?
77. Is another name for the hindbrain telencephelon or rhombencepholon?
78. What is the name of the liquid that surrounds the foetus in the uterus?
79. Which is the first of the human senses to develop in the uterus?
80. What part of the body does the hyoid bone support?
81. Which adjective is the opposite of 'distal'?
82. What is another common word for the thorax?
83. What disease was Molière's 'Malade Imaginaire' suffering from?
84. What colour is the corpus luteum that forms in the ovary in the site of a ruptured graafian follicle?
85. What do we call the digits of the foot?
86. What is the opposite of knock-kneed?
87. Does stenosis mean the widening or narrowing of a lumen or orifice?
88. Scoliosis is also called curvature of which part of the human skeleton?
89. Scurvy, once common among sailors, is due to a lack of which vitamin?
90. The tenth cranial nerve that innervates the gut, heart, lungs and larynx is also called what?
91. Where in the body is the great saphenous vein?
92. Which vertebrae in the spine lie between the cervical vertebrae and the lumbar vertebrae?
93. In what part of the body does the patient experience pain and discomfort in carpal tunnel syndrome?
94. What is the term used for the arrest of a haemorrhage?
95. What similar-sounding word means the maintenance of steady states in the body by coordinated physical processes or feedback mechanisms?
96. In which disease does the patient typically experience an aura?
97. What abbreviation do we normally use for lysergic acid diethylamide?
98. Which Alsatian theologian and musician studied medicine, went to work on a medical mission in equatorial Africa (Lambaréné, Gabon) and was awarded the 1952 Nobel Prize for Peace?
99. What do we call a remedy for all diseases?
100. In the film Ben Hur, what disease do the hero's mother and sister develop?

COMMON GRAMMATICAL MISTAKES IN THE ENGLISH ORAL EXAMINATION

1. *Omission of the subject* of the sentence, particularly, but not only, in subordinate clauses. n.b. Omission of the subject in the main clause is a common mistake when using impersonal constructions such as "It is clear that ... ", "It was likely that ...".

2. *Lack of agreement* between subject and verb.

3. *Omission of "-s"/"-es"* in the third person singular of the present simple tense.

4. *Misuse of tenses*, particularly when referring to the past. Present Perfect often used when Past Simple is mandatory. Errors are also often due to using the wrong tense in relation to the *time the article was written*. If, for instance, in an article written in 1990, reference is made to what is going to happen in the "next two or three years", you cannot use the same future tense or future time expressions as used in the article.

5. *Wrong construction of passive* verb forms.

6. *Intrusion of adverbial expressions between the verb and its object*, usually as a result of trying to maintain the Italian word order.

7. *Wrongly constructed sentences*, often due to attempts to construct *excessively long sentences*.

8. *Misuse of gerunds and infinitives*. Gerunds, and not infinitives, must be used after prepositions. Please remember, too, that "make" is not followed by "to" in sentences such as "They made him take 10 tablets a day".

9. Use of the infinitive with "to" after verbs such as "think" and "believe" and very frequently after "a method" (the correct form is "a method of doing"). You should also remember that verbs such as "permit", "allow" and "enable" require an object and cannot be followed immediately by "to". If you want to translate "Ciò permise di scoprire la causa", you must say either "This enabled us/them/him to discover the cause" or "This made it possible to discover the cause" or, more elegantly, "This enabled the cause to be discovered". "Incapable" is followed by "of + gerund" and not by "to + infinitive", e.g. "incapable of performing simple tests".
n.b. "Want" in expressions corresponding to the Italian "Vogliono che ... " is followed by "to + object + infinitive", e.g. "They want him to continue the treatment". The same goes for constructions with "would like" and "prefer". Do not use "that".

10. *Failure to construct correct comparative sentences*, frequently including misuse of "of" for "than" or "as", depending on the type of comparison, again as a result of translating literally from the Italian. In English, for example, we say "the same as". Sometimes "as" and "so" are erroneously omitted in expressions like "as efficacious as" and "not so efficacious as". Do not use "very" in expressions such as "much bigger", "much longer", "much more difficult", etc.

11. *Intrusive use of the definite article*, particularly with diseases, drugs, substances, enzymes, hormones, etc., and with generalised plurals: correct English is "doctors throughout the world", "lung cancer patients", "pharmaceutical companies in general", "smokers", etc. Unqualified abstract nouns are not preceded by the definite article, e.g. "The basis of scientific progress is research", but "The research conducted by Walters and colleagues has yielded surprising results, and the progress they have made in the field of autoimmune disease is highly encouraging". Please remember, too, that we do not use the definite article with percentages. Conversely, *failure to use the definite article, where appropriate* - e.g. with parts of the body - is also fairly common.

12. *Errors with singular and plural*: often the student fails to pronounce the plural "-s", or makes mistakes with *irregular plurals* ("men", "women", children", "feet", "teeth", "mice", etc.).

13. *Use of the wrong preposition*, almost invariably due to using the nearest Italian equivalent; common examples are mistakes with expressions such as "method of", "in the journal", "on television", "by the researchers" , "depend on", " increase in", "participate or take part in", interest in", "6 out of 10", "increased by 30%", "responsible for", etc.

14. *Inversion of nouns* when one qualifies the other in expressions such as "kidney disease", "blood flow", "blood gas", "stomach pain", "chain reaction", "sleep loss", etc., in which the qualifying noun precedes the noun qualified.

13. Use of "just" instead of "already", "actually" instead of "currently" or "at present", "resulted" instead of "proved", "recovered" instead of "admitted" and "also" instead of "therefore".

14. *Errors with basic expressions of quantity* such as "much", "a few", "few", "a little", "little","a lot of", "more", "less", "another 20", "five million patients", etc. Do not use "no-one" when talking about quantity, e.g. "None of the patients complained of side effects".

15. The indefinite article "a" is not followed by "so" in English: we say "such a serious problem", "such a rapid increase", etc.

16. Pleonastic "of" with the verb to "need", and pleonastic "in" or "into" with "enter": correct English is "The substance entered the bloodstream".

17. *"Italian" inventions* by analogy with other words, e.g. "to administrate" or even "to submínistrate" instead of the correct verb "to administer", "to product" instead of the correct verb "to produce", "as usually" instead of "as usual".

18. *Plural forms of uncountable nouns*: nouns such as "research", "information", "advice", "progress" and even "news" are uncountable in English and must not be used in the plural. They do not govern plural verbs. Correct English is: "They have done research in the field of ...", "We have no information about ... ", "His advice was invaluable", "Their progress was very slow", "The news is good". If singular forms are necessary, we say: "a research study", "a piece of information", "a piece of advice", "a step forward", "a piece of news", or "a new development" (when translating the Italian "una novità"), etc.