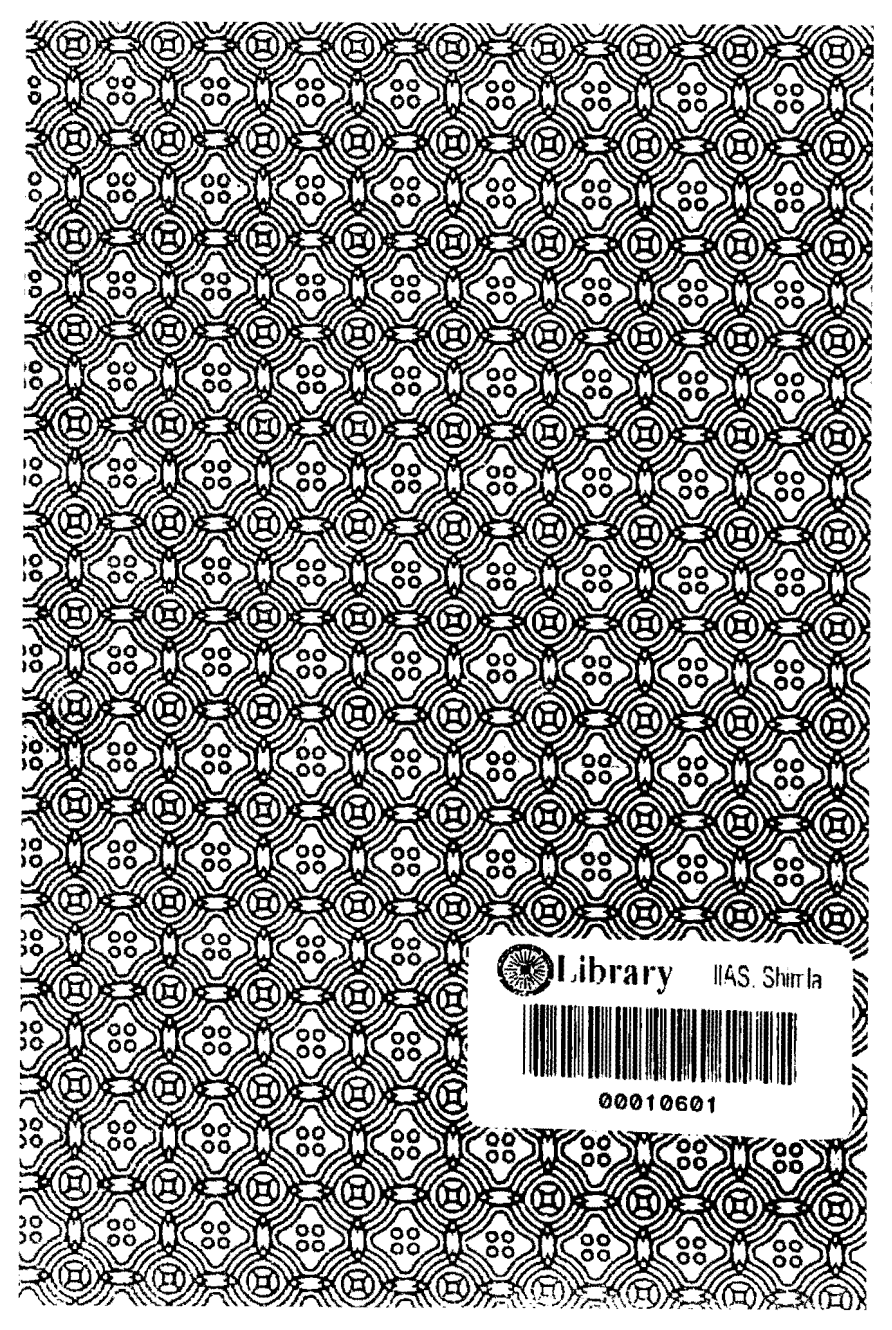

LINES OF THOUGHT

EXERCISES IN REASONED THINKING

R · W · YOUNG

Lines of Thought

EXERCISES IN REASONED THINKING

By

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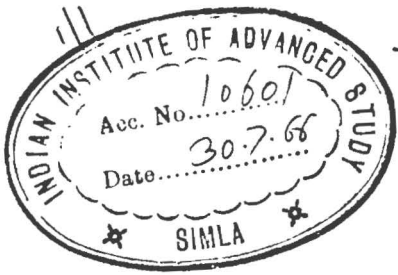

FOREWORD

By the High Master of The Manchester Grammar School

IT is with great pleasure that I write a few words of introduction to *Lines of Thought*. For I feel most strongly that Mr. Young has produced something very valuable indeed. It is not only an interesting and useful book in itself, but it will stimulate teachers to make experiments of their own along the lines which it indicates. Different teachers may well use the book in different parts of the sixth-form course. Personally I welcome it particularly for the contribution which it makes to one of the most pressing of our educational problems, that of the general education of specialists. However we may differ as to the particular solution which we favour, most people are agreed that one of the primary tasks of general studies is to lead the specialist, whether he be scientist or classic, historian or linguist, to think more resolutely about the meaning of what he reads and writes, to be more scrupulous in his use of language, and to consider some of the different modes of thought and expression appropriate to different disciplines. It is primarily this kind of exploration that Mr. Young is trying to encourage. Though what he is necessarily concerned with is really elementary philosophy, it is to be hoped that no one will feel that it is therefore too difficult for most sixth-formers. The examples that he gives have in fact been tried not only with clever boys, but with quite average sixth-form pupils, and, one may add, with no harmful effects upon their Advanced Level results! It will be a great pity if anyone is put off this book by any superficial difficulty that it may present. Difficulties there are, and should be, in exercises that are designed to make people think really hard. But they are certainly within the scope of the sixth-form pupil, given guidance and resolution.

It will be regrettable, too, if anyone regards this as merely another series of exercises in comprehension. Mr. Young is trying to encourage not merely understanding, but independent thought, to start in the mind of the pupil a process that will lead not only to clearer reasoning but to a wider range of ideas. I know that his book is the product of a great deal of reflection, much discussion, and a number of actual experiments with pupils. I believe that it will repay the careful study of anyone who teaches English or General Studies in the sixth form of any grammar school.

ERIC JAMES

PREFACE

My aim in this book is to give sixth-form pupils some training in independent and responsible thinking. I have found that books of English exercises are too preoccupied with style and form, and Philosophy books for sixth forms too concerned with exposition, to leave the pupil time to think things out for himself. I have therefore tried to collect material which will give opportunities for handling evidence and understanding what is meant by relevance; for expounding and criticizing different points of view; and for seeing that the demands of rational thinking vary and that each branch of study has its own characteristic logic as well as its own methods and limitations. The exercises do not on the whole deal with those subjects of topical interest often discussed in sixth forms. Rather they attempt to give an insight into the principles and methods of thought which underlie all rational discussion.

The division of the book into two main parts is designed to lead from the solving of specific problems in Language, Logic, Science, and History, to the examination of passages which discuss the way we use Language, the way we order our public and private lives (Politics and Morals), and the various ways in which we try to understand ourselves and the world around us (History, Science, and Religion).

I believe that this kind of introduction to methods of thinking, and to the philosophical questions at the root of various subjects, is one of the most suitable activities for 'general studies'. The ordinary student needs no initial training before he joins in, and it is only by actually taking part that he learns what it is about. For this reason I have tried to devise problems and choose passages which can be tackled with a minimum of preliminary explanation, and which should provide work in which no particular speciality, whether in arts or science, is of great advantage.

I have not tried to compile a training manual for 'General Papers' in examinations. Only in so far as those who set General Papers are also trying to elicit clear thinking and writing is there any connexion between them and this book. Nor do I wish to train pupils in clever logical tricks; the variety of exercises and questions should prevent the mere acquiring of these. On the other hand, to think for oneself and to express oneself in a coherent and intelligible way are abilities which can be acquired and are not necessarily divine gifts dependent on inspiration. While clarity of mind and intellectual vigour may well be 'gifts', so that the most able seem to do very well without much instruction or practice, the contention of this book is that much more can be done with the less able and less gifted to develop their powers of comprehension, thought, and expression than tends to be done at the present time.

My thanks are due to those authors and publishers who have allowed me to reprint copyright material: their names are given in the List of References at the end of the book. I am greatly indebted to colleagues and friends who have been extraordinarily helpful in giving advice and introducing me to useful material which I have been able to incorporate; for their assistance in these ways I should like to thank Mrs. Charles Christie, Mr. J. Dalglish, Mr. P. J. Hilton, Miss G. O. Lack, Miss M. Meek, Mr. A. J. Smith, and Mr. A. C. Woods. More particularly I am grateful to various forms in the school for experimenting with sample exercises and always improving them; to Mr. D. J. W. Williams for enthusiastically supplying so many scientific exercises; to the High Master, Sir Eric James, for writing the foreword, suggesting several new passages, and giving unfailing encouragement; and to my wife, whose patience and critical disbelief as a guinea pig have been immensely beneficial to me as well as to the book. Most of all I am conscious of the debt I owe to Mr. O. R. Corbett, who has not only made several contributions to the text,

but, even more valuably, devoted much time and thought during the last three years to discussing with me the aims and arrangement of the book.

R. W. Y.

Manchester
July 1958

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INTRODUCTORY NOTE

WITHIN each section of the book the exercises are arranged approximately in order of difficulty, though occasionally (as in Part Two, Section A) an exercise which for reasons of logic is placed late in its section may prove comparatively easy to do. There is some overlapping in difficulty between Parts One and Two, and some problems in Part One, Sections C and D, would extend advanced pupils. But most of Part One has been tried out successfully with first-year sixth forms; while most of Part Two is more suitable for second- and third-year sixths.

Most of the exercises are suitable for either oral or written work. I have found that where figures have to be handled or a specific problem dealt with (e.g. Part One, B. I, C. IV, or D. III) it may be best to ask for written answers; but where the meaning and implication of words is at issue or alternative methods are possible (e.g. Part One, A. III, B. VI, or C. VI) oral discussion has proved more fruitful. In many cases more than one period may be needed for dealing with an exercise; I myself have often used two periods, or one period and a homework, in order to get a full understanding of the text and avoid a superficial treatment of the exercise. Questions may of course be omitted or new questions added at discretion.

Answers, while varying in length, should aim to combine fullness of content with conciseness of expression and clarity of layout. Technical terms and philosophical jargon are to be avoided as much as possible. Worked examples are printed with the instructions for some of the earlier exercises (Part One, A. I, B. II, B. IV). Specimen answers to some of the questions in later exercises (Part One, D. VI; Part Two, A. IV, B. V, B. VII, C. I) are given on pp. 133–7; the questions concerned are marked with an asterisk (*) in the text. It will be found that *all* the questions in one

representative exercise in Part Two (B. VII) have been answered. These specimens are given only to show the type and level of answers expected, and it cannot be too strongly emphasized that very few of them are answers in the strict sense; the whole point of this kind of work is to get away from the mentality which looks for 'answers' provided by a higher authority, and to stress the responsibility of each person to reach his own reasoned conclusions. There is considerable diversity in the ideas and view-points expressed in the passages chosen, and it is hoped that an equal diversity will be found in the answers to and discussion arising from them. Nor should anyone suppose that I myself have access to a Platonic Ideal Book of Answers 'laid up in heaven'.

Questions in Part Two as a rule begin by asking about the meaning and implication of the passage, and they should be answered by referring to the passage itself; they then continue with more general points arising from the passage. The first essential is to comprehend, and to see the point a writer is making; then it is important to see and state the grounds he has for making it. Once this is done criticism is possible and the pupil may go on to produce ideas of his own. Wherever possible questions which can be answered by 'Yes' or 'No' are avoided; even where 'Yes' or 'No' might legitimately be used it is hoped that pupils will give some explanation or evidence in support of their answers.

PART ONE

REASON AND METHOD

We must be content with so much precision in our statement as the subject before us admits of; for the same degree of accuracy is not to be expected in all kinds of knowledge.

ARISTOTLE, *Ethics*

A. LINGUISTIC PROBLEMS

I

THE functions of language are very varied; so that words can be used not only to convey straightforward information, but also, for example, to cajole or persuade or command, to evoke or dissipate emotion, to lull or challenge prejudices, to conceal or reveal assumptions. For each of the following statements you are asked to state what particular point you think is being made by the phrasing or tone of the words, and to add a comment on the linguistic usage employed; in some examples certain words are italicized to suggest a clue to the writer's true meaning or intention:

EXAMPLE

Drive a Hillman for *real* petrol economy.

Suggested answer

The purpose of this advertisement is to suggest that a Hillman car will use less petrol than other cars; the word 'real' is meant to imply that, whereas other cars may appear to save petrol, only the Hillman really does so. Since it is not very clear what apparent or unreal petrol economy would be like, the advertisement is using language rather absurdly; but the emotive force of the word 'real' conceals this, whilst it succeeds in persuading the uncritical reader that a genuine advantage is being offered him.

(*a*) Stockings mended in *59 minutes*.

(*b*) *SALE* PRICE—22½ gns.: original price—£23 7s. 6d.

(*c*) The only *scientific* toothpaste on the market.

(*d*) A *mighty* epic in *glorious* technicolour.

(*e*) We are not at war; we are in armed conflict.

(*f*) Since you are all, *of course*, familiar with Pound's symbolism, I need do no more than *remind* you of its *essential* flamboyancy.

(*g*) Top People . . . take 'The Times'. But then of course you may not belong to that knowledgeable class of people. It adds to your stature among men.

(*h*) Brightlingsea has other boats, equally beautiful, which are to be seen in the waterway, their masts and lines *faultlessly* reflected in the water.

(*i*) (1) How soon can you get here and how long can you stay? (2) What time will you arrive and when will you be leaving?

(*j*) Woman passenger in Rolls Royce taxi that has broken down: 'This *is* a *Rolls Royce*, isn't it?'

(*k*) The outstanding feature of Mr. X's work is its *living* quality.

(*l*) My country right or wrong.

(*m*) Surely this is not a *real* Martini?

(*n*) In American schools we don't talk about children being bossy; we call it leadership.

II

THE Forbes Robertson *Hamlet* at the Lyceum is, very unexpectedly at that address, really not at all unlike Shakespeare's play of the same name. I am quite certain that I saw Reynaldo[1] in it for a moment; and possibly I may have seen Voltimand[1] and Cornelius[1], but just as the time of their scene arrived, my eye fell on the word Fortinbras[1] in the programme, which so amazed me that I hardly know what I saw for the next ten minutes. Ophelia[1], instead of being a strenuously

[1] Names of characters in *Hamlet*.

earnest and self-possessed young lady giving a concert and recitation for all she was worth, was mad—actually mad. The story of the play was perfectly intelligible, and quite took the attention of the audience off the principal actor at moments. What is the Lyceum coming to? Is it for this that Sir Henry Irving has invented a whole series of original romantic dramas, and given the credit of them without a murmur to the immortal bard whose profundity (as exemplified by the remark that good and evil are mingled in our natures) he has just been pointing out to the inhabitants of Cardiff, and whose works have been no more to him than the word quarry from which he has hewn and blasted the lines and titles of masterpieces which are really all his own? And now, when he had created by these means a reputation for Shakespeare, he no sooner turns his back for a moment on London than Mr. Forbes Robertson competes with him on the boards of his own theatre by actually playing off against him the authentic Swan of Avon. Now if the result had been the utter exposure and collapse of that impostor, poetic justice must have proclaimed that it served Mr. Forbes Robertson right. But alas! the wily William by literary tricks which our simple Sir Henry has never quite understood has played into Mr. Forbes Robertson's hands so artfully that the scheme is a prodigious success. The effect of this success, coming after that of Mr. Alexander's experiment with a Shakespearian version of *As You Like It*, makes it almost probable that we shall presently find managers vying with each other in offering the public as much of the original Shakespearian stuff as possible, instead of, as heretofore, doing their utmost to reassure us that everything that the most modern resources can do to relieve the irreducible minimum of tedium inseparable from even the most heavily cut acting version will be lavished on their revivals.

1. Explain the meaning or point of the following quotations:
   (*a*) 'I am quite certain that I saw Reynaldo' (ll. 3–4).
   (*b*) 'The story of the play . . . principal actor at moments' (ll. 12–14).
   (*c*) 'Sir Henry Irving has invented . . . romantic dramas' (ll. 15–16).
   (*d*) 'the word quarry from which . . . really all his own' (ll. 21–23).
   (*e*) 'the irreducible minimum of tedium . . . acting version' (ll. 43–45).
2. What is the 'tone' of the passage?
3. What do you gather is the writer's opinion of (*a*) Shakespeare, (*b*) Sir Henry Irving, and (*c*) Forbes Robertson? Indicate which phrases lead you to your view.
4. What sort of productions of Shakespeare was the writer accustomed to seeing before this performance of *Hamlet*?

III

EXPLAIN the different ways in which the words 'nature', 'law', and 'because' are used in the following sentences or phrases:

(*a*) I don't like drugs: I believe in natural remedies.
(*b*) The work of man is everywhere destroying the beauties of nature.
(*c*) It is unnatural for a mother to allow her children to go hungry.
(*d*) Nature red in tooth and claw.
(*e*) Natural rights.
(*f*) The laws of nature.
(*g*) And I, my Lords, embody the Law [spoken by the Lord Chancellor].
(*h*) The law of averages.

(*i*) The law of the jungle.
(*j*) Don't break the law, change it.
(*k*) The moral law.
(*l*) Law and Order.
(*m*) Going to law.
(*n*) I did it because it was the right thing to do.
(*o*) They have murdered the old lady because they were after her money.
(*p*) The engine will not go because it has not got petrol in it.
(*q*) $3x = 12$ because $x = 4$.

IV

For a street one name is as good as another. To prove this proposition, let me proceed by analogy of the names borne by human beings. Surnames and Christian names may alike be divided into two classes: (1) those which, being identical with words in the dictionary, connote some definite thing; (2) those which, connoting nothing, may or may not suggest something by their sound. Instances of Christian names in the first class are *Rose*, *Faith*; of surnames, *Lavender*, *Badger*; of Christian names in the second class, *Celia*, *Mary*; of surnames, *Jones*, *Vavasour*. Let us consider the surnames in the first class. You will say, off-hand, that *Lavender* sounds pretty, and that *Badger* sounds ugly. Very well. Now, suppose that Christian names connoting unpleasant things were sometimes conferred at baptisms. Imagine two sisters named *Nettle* and *Envy*. Offhand, you will say that these names sound ugly, while *Rose* and *Faith* sound pretty. Yet, believe me.

there is not, in point of actual sound, one pin to choose either between *Badger* and *Lavender*, or between *Rose* and *Nettle*, or between *Faith* and *Envy*. There is no such thing as a singly euphonious or a singly cacophonous name. There is no word which, by itself, sounds ill or well. In combination, names or words may be made to sound ill or well. A sentence can be musical or unmusical. But in detachment words are no more preferable one to another in their sound than are single notes of music. What you take to be beauty or ugliness of sound is indeed nothing but beauty or ugliness of meaning. You are pleased by the sound of such words as *gondola*, *vestments*, *chancel*, *ermine*, *manor-house*. They seem to be fraught with a subtle onomatopoeia, severally suggesting by their sounds the grace or sanctity or solid comfort of the things which they connote. You murmur them luxuriously, dreamily. Prepare for a slight shock. *Scrofula*, *investments*, *cancer*, *vermin*, *ware-house*. Horrible words, are they not? But say *gondola-scrofula*, *vestments-investments*, and so on; and then lay your hand on your heart, and declare that the words in the first list are in mere sound prettier than the words in the second. Of course they are not. If *gondola* were a disease, and if *scrofula* were a beautiful boat peculiar to a beautiful city, the effect of each word would be exactly the reverse of what it is. This rule may be applied to all the other words in the two lists. And these lists might, of course, be extended to infinity. The appropriately beautiful or ugly sound of any word is an illusion wrought on us by what the word connotes. *Beauty* sounds as ugly as *ugliness* sounds beautiful. Neither of them has by itself any quality in sound.

It follows, then, that the Christian names and surnames in my first class sound beautiful or ugly according to what they connote. The sound of those in the second class depends on the extent to which it suggests

any known word more than another. Of course, there might be a name hideous in itself. There might, for example, be a Mr. Griggsbiggmiggs. But there is not. And the fact that I, after prolonged study of a Postal Directory, have been obliged to use my imagination as a factory for a name that connotes nothing and is ugly in itself may be taken as proof that such names do not exist actually.

1. The writer says that 'for a street one name is as good as another' (l. 1). What premisses does he use to 'prove this proposition'?

2. 'There is no such thing . . . single notes of music' (ll. 21–28).

(*a*) Give in your own words the idea put forward here.
(*b*) What does the writer say elsewhere in the passage to modify this idea?

3. 'This rule may be applied to all the other words in the two lists' (ll. 44–45).

(*a*) State what rule it is that is to be applied.
(*b*) Apply it to another pair of words from the lists.

4. This passage does not come from a reference book on names.

(*a*) Pick out any words or expressions which suggest by their 'tone' that this is unlikely to have been so anyway.
(*b*) What word(s) might be used to characterize the 'tone' of these words or expressions?

5. Supposing that you are a town-councillor on the sub-committee for the naming and renaming of streets: suggest what you would say in answer to the above thesis. You should include: (*a*) a *general* refutation of the argument, to show why one name is *not* as good as another for streets, and (*b*) examples of particular names to support your view.

V

You are a member of the jury in a murder trial. The accused is a certain Mr. S. J. Roxy, who is alleged to have killed his father Mr. S. S. Roxy. The murder took place during a time of political disturbance, and the family property has subsequently been confiscated. Counsel for the defence includes the following passage in his speech. It is directed at Mr. Titus Roxy, a relative of the dead man, who has appeared in court and is sitting conspicuously among the defendant's enemies. On Mr. S. S. Roxy's death Titus secured part of the property under the deed of confiscation.

After reading the passage you are asked to:

1. Pick out any words, expressions, or rhetorical devices which strike you as tendentious or unfair, and try to explain why.
2. State how much weight you would attach to each of the points made by Counsel for the defence, and why; you should note at the same time which points, if any, might fairly be used in assessing Mr. S. J. Roxy's innocence or guilt.

No real case has been made out against Mr. Roxy here; but I find there is one against Titus Roxy there. For it is you I am going to deal with, Titus, since you sit over there openly advertising your enmity. The famous Mr. Justice Cassidy, whom people in this city used to consider the justest and wisest of judges, used to ask time and again: 'Who has benefited from the crime?' For the life of man is such that no one attempts to commit a crime without hope of gain. Now if, in this case, he saw the prosecution in possession of substantial wealth, while the defendant was in the deepest poverty, he certainly would not ask who had benefited, but, since that was obvious, rather suspect and indict the profiteers than the robbed. What would he do if, in

addition to this, there was clear evidence that you were formerly in financial straits; that you were thirsting for money; that you would stop at nothing; that you were the bitter enemy of the man who has been murdered? Surely there would be no need to look for a motive to drive you to such a vile crime? Which of these facts can be denied? Your financial embarrassment was such that you could not conceal it; the more you kept it under the counter the more obvious it became. You parade your thirst for money by conspiring with a total stranger[1] to usurp a kinsman's and fellow townsman's property. Everyone can judge that you stop at nothing from this fact—to pass by other evidence—namely, that out of the whole gang, that is out of all those cut-throats, you alone have been found to sit beside the prosecution, and not only to show your face in court, but even to stick your neck out. Finally, you cannot but admit that there have been feuds and ugly family quarrels between you and Mr. Roxy, can you?

It only remains, gentlemen, for us to ask ourselves this question: Who was the more likely to have killed Mr. Roxy? The man on whom riches have poured at his death? or he who has subsequently become impoverished? The man who, inflamed by greed, viciously attacked his own family? or he whose life was such that he knew no kind of profit but those fruits which were garnered by honest labour? The man who of all racketeers is the most brazen? or he who is so unused to the law-courts and the market-place that he shrinks not only from the court-room, but even from the city itself? My last question, gentlemen, is this—and in my view it is the most relevant to the issue: Was the murderer more probably an enemy or a son?

[1] A certain Mr. Goldson, who also benefited from the confiscation of Mr. Roxy's property.

VI

'That was the Grange', remarked Albert, over his shoulder, and then he jammed the brake on, and the motor slowed down and stopped. 'I'm sorry,' said he, turning round. 'Do you mind getting out—by the door on the right. Steady on.'

'What's happened?' asked Mrs. Warrington.

Then the car behind them drew up, and the voice of Charles was heard saying: 'Get the women out at once.' There was a concourse of males, and Margaret and her companions were hustled out and received into the second car. What had happened? As it started off again the door of a cottage opened, and a girl screamed wildly at them.

'What is it?' the ladies cried.

Charles drove them a hundred yards without speaking. Then he said: 'It's all right. Your car just touched a dog.'

'But stop!' cried Margaret, horrified.

'It didn't hurt him.'

'Didn't really hurt him?' asked Myra.

'No.'

'Do *please* stop!' said Margaret, leaning forward. She was standing up in the car, the other occupants holding her knees to steady her. 'I want to go back, please.'

Charles took no notice.

'We've left Mr. Fussell behind,' said another: 'and Angelo and Crane.'

'Yes, but no woman.'

'I expect a little of'—Mrs. Warrington scratched her palm—'will be more to the point than one of us!'

'The insurance company will see to that,' remarked Charles, 'and Albert will do the talking.'

'I want to go back, though, I say!' repeated Margaret, getting angry.

Charles took no notice. The motor, loaded with refugees, continued to travel very slowly down the hill. 'The men are there,' chorused the others. 'Men will see to it.'

'The men can't see to it. Oh, this is ridiculous! Charles, I ask you to stop.'

'Stopping's no good,' drawled Charles.

'Isn't it?' said Margaret, and jumped straight out of the car.

She fell on her knees, cut her gloves, shook her hat over her ear. Cries of alarm followed her. 'You've hurt yourself,' exclaimed Charles, jumping after her.

'Of course I've hurt myself!' she retorted.

'May I ask what—'

'There's nothing to ask,' said Margaret.

'Your hand's bleeding.'

'I know.'

'I'm in for a frightful row from the pater.'

'You should have thought of that sooner, Charles.'

Charles had never been in such a position before. It was a woman in revolt who was hobbling away from him, and the sight was too strange to leave any room for anger. He recovered himself when the others caught them up: their sort he understood. He commanded them to go back.

Albert Fussell was seen walking towards them.

'It's all right!' he called. 'It wasn't a dog, it was a cat.'

'There!' exclaimed Charles triumphantly. 'It's only a rotten cat.'

1. Why do you think the following remarks are made and what do they tell you of the people who said them?

(*a*) 'Get the women out at once' (ll. 8–9).

(*b*) 'Yes, but no woman' (l. 29).
(*c*) 'I expect a little of ——' (l. 30).
(*d*) 'The men are there' (l. 38).
(*e*) 'It's only a rotten cat!' (ll. 64–65).

2. What do you learn from this passage of the characters of (*a*) Charles, and (*b*) Margaret?

3. What social class do the people in the car belong to? What period is the author writing about? Give reasons.

4. Try to rewrite the scene as simple narrative without any dialogue and a minimum of reported speech.

5. Write a short critical appreciation of this passage. What view do you think the author holds of the people about whom he is writing?

B. LOGICAL PROBLEMS

I

You are writing on behalf of a travel agency to someone who lives in Cockermouth, Cumberland, and wishes to go to Kyle of Lochalsh, Ross-shire, Scotland, for his holiday. He is free at 6 p.m. on Friday, 10 July, and must be back at work again at 9.45 a.m. on Monday, 20 July. He explains that he has a friend in Edinburgh, and a friend in Carlisle with whom he is going on his holiday; he could spend a night with either or both of these. He makes the following conditions:

1. He must have the longest possible time in Kyle, consistent with—

2. He must see as much of the Scottish countryside as possible in travelling to and fro.

3. He must have at least 24 hours in Edinburgh, which will enable him to go to a concert at 7.30 p.m. on Saturday, 18 July.

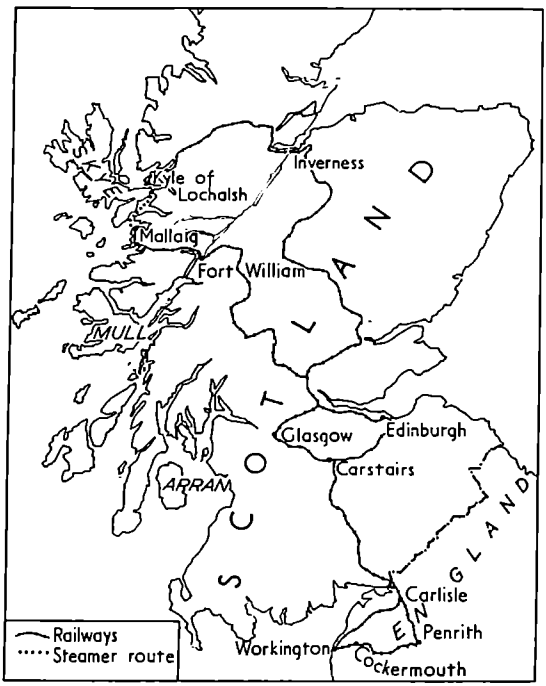
4. He must have at least 7 hours' sleep during the night before returning to work and time for breakfast at home on Monday, 20 July.

Write the letter, which will enclose the tickets, explaining the journey there and back, using the information given below. You should point out when meals can be conveniently got on the train or boat.

(1) *Cockermouth–Carlisle, via Penrith*

		Weekdays p.m.			
Cockermouth	*dep.*	3.26	5.45	..	7.00
Penrith	*arr.*	4.26	6.54	..	8.01
Penrith	*dep.*	..	6.56	7.50	..
Carlisle	*arr.*	5.10	7.15	8.11	8.39

		Weekdays a.m.		
Carlisle	*dep.*	6.10	8.30	9.45
Penrith	*arr.*	6.41	9.01	10.12
Penrith	*dep.*	7.17	..	10.20
Cockermouth	*arr.*	8.22	..	11.16



(2) *Cockermouth–Carlisle, via Workington*

		Weekdays p.m.						Weekdays a.m.		
Cockermouth	*dep.*	4.38	6.11	7.27	8.10	Carlisle	*dep.*	5.40	6.50	8.25
Workington	*arr.*	4.56	6.29	7.45	8.33	Workington	*arr.*	6.52	7.55	9.49
Workington	*dep.*	5.36	6.35	8.15	9.50	Workington	*dep.*	7.05	8.35	9.50
Carlisle	*arr.*	6.37	7.29	9.09	10.44	Cockermouth	*arr.*	7.22	8.38	10.08

(3) *Carlisle–Edinburgh/Glasgow–Inverness–Kyle of Lochalsh*

		Weekdays						Sundays
		p.m.	p.m.	p.m.	a.m.	a.m.	a.m.	p.m.	p.m.	p.m.
Carlisle	*dep.*	7.25R	..	8.30	..	2.19R	..	..	5.10R
Edinburgh	*arr.*	9.45	..	..	..	..	..	..	..	..
Edinburgh	*dep.*	..	10.45X	..	..	..	..	..	..	..
Glasgow	*arr.*	9.35	..	..	..	..	..	..	..	..
Glasgow	*dep.*	..	11.15X	..	..	..	..	..	..	..
Inverness	*arr.*	..	5.35a	5.25a	..	10.12	..	..	5.35a
Inverness	*dep.*	..	..	..	9.05	..	10.30	5.10R	..
Kyle of L.	*arr.*	..	..	..	12.28p	..	1.59p	8.42	..

		Weekdays						Sundays	
		a.m.	a.m.	p.m.	a.m.	p.m.	p.m.	p.m.	p.m.
Kyle of L.	*dep.*	..	6.25	..	10.15R	..	5.40	..	..
Inverness	*arr.*	..	10.22	..	2.24p	..	8.42	..	..
Inverness	*dep.*	8.20R	..	..	..	3.40	..	..	..
Glasgow	*arr.*	..	4.57p	..	9.12p	..	..	..	..
Glasgow	*dep.*	..	..	5.40	..	..	..	5.45	11.55
Edinburgh	*arr.*	..	5.01p	..	8.39p	..	..	..	..
Edinburgh	*dep.*	..	..	5.35	..	..	..	5.40	11.30
Carlisle	*arr.*	3.39p	..	8.25	..	12.48a	..	8.25	2.18a

(4) *Edinburgh/Glasgow–Mallaig–Kyle of Lochalsh*

		Weekdays Only				
		a.m.	a.m.	p.m.	p.m.	a.m.
Edinburgh	*dep.*	3.45S	4.30X	..	..	10.21SR
Glasgow	*dep.*	5.15S	5.45X	..	..	10.45SR
Mallaig	*arr.*	11.24S	12.00X	..	..	4.49pS
Mallaig	*dep.**	..	..	12.30R	1.30R	..
Kyle of L.	*arr.**	..	..	2.15	3.30R	..

		a.m.	a.m.	a.m.	a.m.	p.m.	p.m.
Kyle of L.	*dep.**	5.00	..	..	10.00	..	..
Mallaig	*arr.**	7.05	..	..	11.40	..	..
Mallaig	*dep.*	..	7.42XR	8.15SR	..	12.30R	1.00R
Glasgow	*arr.*	..	2.10X	2.48pS	..	6.46p	7.27
Edinburgh	*arr.*	..	3.09X	4.14pS	..	..	9.16

R = Restaurant Car
S = Saturdays Only
X = Saturdays Excepted
a = a.m.
p = p.m.
* = Steamer Service

II

SAY what is wrong with the argument in each of the following statements:

EXAMPLE

If one aspirin cures a headache in 20 min., then two will cure a headache in ten.

Suggested answer

Even if one knows nothing about how aspirins work, it is still an unjustified assumption that the number of aspirins swallowed is in exact proportion to the time they need to take effect. In fact we know that aspirins have to be assimilated by the body somehow, and that this will take a certain

minimum time, however many pills are taken. Therefore the argument, based on the assumption of an exact proportion between number of pills and length of time, cannot be right.

1. (*a*) Sarah used to be taller than Tommy, but now she is shorter; so she must have changed in height.

(*b*) The average Englishman dies at the age of 62, so Smith, who is an average Englishman, has no chance of living to 63.

(*c*) Most men wear waistcoats and most men wear trousers; therefore most men wear both.

(*d*) The —— Building Society gives you $3\frac{1}{2}$ per cent. (tax free) on your investments and a peace of mind that money cannot buy.

(*e*) Learn to cut your finger nails with your left hand, for some day you may not have a right.

2. (*a*) He cannot have committed this crime for he is widely respected and respectable people do not commit such crimes.

(*b*) You said yesterday it might not rain today; but as it has rained you were wrong.

(*c*) John could not be older than Bill without being older than Bill's younger brothers. So John could not be friendly with Bill without being friendly with Bill's friends.

(*d* Since you write the English language correctly, or very nearly so, you must know the rules of English grammar; so you must know what to put in an English grammar book, or very nearly so.

(*e*) You cannot catch zebras unless there are some zebras to catch. So you cannot be afraid of ghosts unless there are some ghosts to be frightened of.

3. (*a*) We've lost the toss in the last five matches, so we've an especially good chance of winning it next time.

(*b*) Over the last four years the numbers of suicides in this town have been 22, 29, 23, 30; so next year they will probably number 24.

(*c*) All Methodists are followers of Rugby football.
No one will work on Saturday who follows Rugby football.
No one with a T.V. set refuses to work on Saturday.
My father employs some people who own T.V. sets.
Therefore my father does not employ any Methodists.

(*d*) If we buy foreign goods, we get the goods but the foreigners keep the money. If we buy British, we get the goods and keep the money too. Therefore it always pays to buy British.

(*e*) That accident happened either because of the signalman's negligence or because he did not know that a train was coming. If he did not know a train was coming, the warning system must have failed. If there's an electricity breakdown, or if there is sabotage, the warning system fails. But there was no electricity breakdown. So if it was not the signalman's negligence it must have been sabotage.

III

On 19 September 1956 Mr. Donald Campbell set up a new world water-speed record in his boat *Bluebird*. The boat covered the measured mile in one direction at 287[1] m.p.h., and in the other at 164[1] m.p.h. The official speed for the record was then calculated as 225[1] m.p.h.; this was according to the usual method of taking an arithmetical mean between the speeds in each direction, the purpose of which is to eliminate the effects of wind and tide. But on this occasion the variation was not due to wind and

[1] Figures taken to the nearest whole number.

tide: over the first mile Mr. Campbell's speedometer failed to work and he went much faster than he had intended; in the second run he therefore proceeded more cautiously, which accounts for the low speed attained.

Certain critics argued in *The Times* that to have taken a mean between two speeds was an absurd method of calculating a speed for the record in this particular instance, for the figure reached bore no relation to an actual speed reached or maintained by *Bluebird*. Some suggested that a more reasonable method would be to take the average speed of *Bluebird* over the two miles—209[1] m.p.h. This would not in fact have established a new record.

In reply to their letters the following letter was published. Read it through carefully, and then write notes assessing the worth of the arguments used and the manner of their presentation.

To the Editor of *The Times*

Sir,

It is interesting to note the somewhat conflicting theories put forward by Mr. R. G. Howells and others, which have appeared in letters published over the past week, concerning the method of calculating Mr. Donald Campbell's recent world water-speed record. Nevertheless, without going into lengthy technicalities, I would like to make it clear that the advertised result of 225[1] statute m.p.h. was calculated by the official time-keeper and observed in strict compliance with the internationally recognized and accepted rules for such records, as laid down by the Union of International Motorboating, to whom all details were submitted immediately following the attempt. Proof of accuracy is evident from their official confirmation of this record received by our association on 1 October. This record has, of course, as correctly assumed by Mr. H. M.

[1] Figures taken to the nearest whole number.

Collins, been assessed by the same means as previous water-speed records undertaken by Mr. Campbell and others, both here and abroad.

Whilst respecting the obvious capabilities of the various gentlemen in their own particular sphere who have advertised their theories, it must be appreciated that none of them has practical experience in the field of water-speed records. Granted, theory is the basis of all serious application, but it can be proved only in practice. In so far as the computation of speeds for marine records are concerned, I would suggest that this is best left in the hands of men with years of practical experience of such matters being universally representative within the Union of International Motorboating.

Yours faithfully,

IV

1. The following statements are foolish or fallacious because each makes some concealed and/or unjustified assumption(s). What is taken for granted is a special definition of words or a value judgement which would not win general acceptance. You are asked to say what assumption(s) is (are) being made in each case:

EXAMPLE

Mrs. McDonagh flew back to England after three weeks in South Carolina with wealthy Mr. and Mrs. Vinansky with whom she left her 18-month-old daughter, Joyce. She said: 'Joyce will have a nice modern home and will be very happy.' Mrs. McDonagh had said that she was willing to give up her baby if she could be given a better life in America.

Suggested answer

Three assumptions may be distinguished here: (*a*) that a better life is one which offers more material comforts in the home; (*b*) that material comforts give adequate guarantee of a child's happiness; (*c*) that the absence of a mother from her child from an early age can be made up for by a 'nice modern home' and wealthy foster-parents.

(*a*) A spokesman for an exporting firm said afterwards: 'There is no question of "fiddling"; this sort of thing has been going on for hundreds of years.'

(*b*) It is not natural for a man to eat tinned food, so a diet consisting wholly of the stuff is bound to be bad for him.

(*c*) The gift of a bicycle will make him happy, so the gift of two will make him doubly happy.

(*d*) Children must be left free to express themselves and discover themselves, so they must be spared the deadening routine of systematic study or practice.

(*e*) What a reflection on our status as a sea-faring nation that the Royal Navy and Merchant Navy should have to accept the loan of a ship in order to take part in the proposed international sailing race from Torbay to Lisbon!

(*f*) Every immigrant is a new mouth to feed, so to conserve our supplies immigration should be kept to a minimum.

2. Consider briefly: (i) the validity of the premisses, and (ii) the correctness of the deductions from the premisses in the following passages:

(*a*) A democratic country needs efficient administrators. But efficient people impose their view on their less able or lazier fellows, so that the government ceases to be democratic and becomes oligarchic. Therefore if you wish to

preserve a democratic constitution it is inadvisable to have efficient administrators.

(*b*) Every man has a natural right to the means of subsistence. A starving man who steals to supply himself with the means of subsistence is thereby exercising a natural right and his action is morally justified.

(*c*) Honesty is the best policy, but honesty demands that one should be disinterested, so that the man who acts from interested motives is not an honest man.

(*d*) The individual cannot exist without the community. The interests of the community must therefore be preferred to the interests of individuals. From this statement it follows that forced labour is justified when it is impossible to find labour on a voluntary basis.

(*e*) Nations, like individuals, are improved by competition. Competition between nations takes the form of war. If war is abolished there will be no competition, and, in consequence, less incentive to improvement.

V

1. State as briefly as possible in a series of numbered propositions the arguments used in the following passage.

2. Examine their cogency and their consistency with each other. New arguments, for or against Capital Punishment, must NOT be introduced unless strictly relevant to any argument actually used in the passage.

A murderer is wicked and must be hanged. He has asked for his punishment and no sentiment must prevent his getting it. It is only right that the *Lex Talionis*, an eye for an eye and a tooth for a tooth, should be applied in the case of murder, as in murder above all the author of a hideous crime must be made to realize its seriousness; only

hanging will do this. British justice is the finest in the world, and abolition of the death penalty may make people think we are failing to punish crime justly. It is the principles of justice that are at stake.

It is, moreover, clear that the majority of people in this country are not in favour of abolition. Whatever the rights of abolition in principle, it would be impractical for the administration of justice to go ahead of public opinion. It is clear from the many letters in the popular press that abolition would shock the moral feelings of the nation. We must not upset the tranquillity of the majority for the sake of humaner treatment of a minority who have in any case forfeited the rights of humanity by committing murder.

But is hanging so cruel after all? In fact it is less barbaric than the other penalties suggested. It is quick, and, thanks to modern methods, painless. It is only the ghoulish publicity of the popular press which makes it seem cruel. Really it is a kindness to the criminal compared to the slow torture of life imprisonment, the endless lingering on of useless years. Surely this, not hanging, is the really vindictive punishment? And then there is always the burdensome expense of imprisoning murderers for life; the taxpayer has a right to be considered.

Nor are these the only objections to life imprisonment. There is always the chance that an imprisoned murderer may escape and be free to murder again. Do not forget, either, that life imprisonment is only a nominal sentence; in actual fact a 'lifer' who behaves will not be 'inside' very long. And what will happen when he comes out? Will the ordinary person be safe? Will you or I be able to sleep soundly in our beds when we know that murderers roam the country, that cut-throats are sharpening their razors, ready to go out on the attack? Will judges and juries ever know a moment's rest if they know the 'killer' they convicted is out again and whetting his vengeance? It is not only the murderer who must be considered, as some senti-

mental reformers suggest; it is the safety of the public that is primarily at stake, and a sentence of life imprisonment will not give us adequate protection.

Many of those who press for abolition on grounds of humanity have rarely considered how humane in fact the present system is. Recent figures show that out of 677 men sentenced to death in the thirty years 1925–54 247 were reprieved; and out of 60 women sentenced only 7 were actually hanged. Every possible consideration is given to a murderer: almost one in every two gets off, and of course the proportion is much higher if you are a woman. Nevertheless it is only right that the relatives of the victim, not to mention the victims themselves, should expect justice to be done and the law to take its course in the majority of cases.

No: we must face realities and not be humbugged by specious ideas of reform and humanity into pampering criminals who richly deserve their reward. Apart from this the real issue is whether it is abolition or retention which will more successfully deter men and women from committing murder. And on this point there can be no doubt; hanging will deter where imprisonment may actually encourage. The certain expectation of death must often have held the hand of a would-be murderer. You have only to put the case to yourself and you will see that this is true. And what applies to you applies to the murderer; he is human, like you; he reacts as you do to the deterrent power of the gallows. Do not be misled by the irrelevant appeals of reformers to the experience of countries where capital punishment has been abolished. The circumstances in Denmark and other countries are quite different from those in England; we must not suppose that their behaviour can serve as a guide to ours. It is your safety not theirs, which is at stake, and it is up to you to see justice done.

VI

CONSIDER each of the following statements and—

1. Say whether you think its validity could be established or denied without reference to experiment or evidence;

2. (*a*) if it could be, EITHER give one argument which might be used to support it, OR show why no experiment or evidence would be required;

(*b*) if it could not, indicate the kind of experiment or evidence that would be required in order to substantiate or refute it.

A. (*a*) The *Manchester Guardian* is not published on Boxing Day.
   (*b*) *Whitaker's Almanac* is a useful book.
   (*c*) An isosceles triangle is a three-sided figure, two of whose sides are of equal length.
   (*d*) Larceny is a criminal offence.
   (*e*) Indians are good hockey players.

B. (*a*) I cannot do this exercise.
   (*b*) No man can survive more than twenty days without food.
   (*c*) Deaf men can't hear.
   (*d*) Pigs can't fly.
   (*e*) A player cannot score a try in Rugby if he is standing in front of the player with the ball and then receives a pass.

C. (*a*) 2 plus 2 equals 4.
   (*b*) It is good to keep promises.
   (*c*) History is bunk.
   (*d*) Electrons don't exist.
   (*e*) God is good.

VII

READ carefully the notes given below on the following case at law,[1] and then answer the questions:

A. *History of the case*

On 4 November 1955 a well-dressed distinguished-looking stranger arrived in a Hillman at a car-dealer's showroom in Newbury. He said that he wanted to buy a car and offered the Hillman in part exchange. The salesman showed him a Morris. It was agreed that he should take the Morris on hire-purchase.

The stranger signed a proposal form offering to enter into a hire-purchase agreement with a finance company. The finance company would make inquiries. If it was satisfied it would buy the car and let it to the hirer. In his proposal form the stranger gave an address in Swindon and the name and address of his employer. With the proposal form other forms were to be sent to the finance company. There was a dealer's statement in which the dealer declared that the car would not be delivered except on the company's instructions. In addition a hire-purchase agreement and a receipt were signed by the hirer but were not to be effective until the company accepted the proposal. However, the salesman was so impressed with his customer that he felt certain that the finance company would not turn down the proposal. So he took the Hillman, let the stranger have the Morris, and even gave him the log book for the Morris. The stranger drove off and the salesman never saw him again.

Meanwhile the forms were sent to the finance company. Next morning the company telephoned to say that they thought the stranger was a fraud. The address in Swindon did not exist. The alleged employer was fictitious. Even the Hillman did not belong to the stranger.

[1] *Central Newbury Car Auction Ltd.* v. *Unity Finance Ltd.* (1957), 1 Q.B. 371.

Of course, the Newbury dealers wanted to get back the Morris. Apparently the stranger had found little difficulty in selling it to a dealer in Birkenhead in return for an open cheque for £200. He cashed the cheque and went on his way rejoicing. The dealer sold the Morris to an innocent buyer who bought it on hire-purchase with the aid of another finance company. The Newbury dealers traced the car and claimed that it belonged to them. They asked for its return. When it was not returned they sued the innocent buyer and his finance company.

B. *Legal principles to be taken into account*

1. The person who enables a rogue to occasion a loss ought to bear the loss.

2. The owner of goods should not lose the right to recover them, if he can trace them. Even if a man is negligent in parting with the possession of his goods he will not lose his ownership.

3. If the owner of goods is not merely negligent but positively represents to someone (X) that someone else (A) owns the goods, the owner may be prevented from denying the truth of that representation. If X believes the owner's representation and acts on it, for example, by paying A for the goods when A tries to sell them to him, the court will prevent the owner from asserting his ownership against X. This is known as estoppel; and the result of this estoppel is that X will become the owner of the goods.

C. *Additional notes*

1. A car's log book. When a licence is first given for a car the licensing authority must register the car and give it a registration number. The log book is issued showing that this has been done. The regulations merely define the 'owner' of the car in whose name the log book is issued, as 'the person by whom the vehicle is kept and used'.

2. The legal owner of a car is the person who can sell the car and give a good title to it to a buyer.

3. In the present case the County Court gave judgement one way, and a majority of the Court of Appeal the other way. One of the judges of the Court of Appeal agreed with the County Court's judgement.

1. State as clearly as you can the legal problem involved in this case.

2. State as briefly as you can the case that might have been made by (*a*) the plaintiffs and (*b*) the defendants in support of their respective claims.

3. Assuming that you are a judge being asked to give judgement in this case, state what decision you would have come to and why. You are advised in making your statement to consider the relevance to the case of:

(*a*) the log book,
(*b*) ownership of a car,
(*c*) negligence or carelessness,
(*d*) estoppel.

Discussion of other relevant points is not precluded by this list.

C. SCIENTIFIC AND STATISTICAL PROBLEMS

I

In a prisme or Piece of Wood, about twelve yards long and half a yard broad one way and three inches the other, we made upon the narrow Side or Edge a groove a little more than an inch wide: we shot it with the Grooving Plane very Straight, and to make it very smooth and sleek, we glued upon it a piece of Vellum polished and smoothed as exactly as can be possible: and in it we have let a brazen Ball, very hard, round and smooth, descend. Having placed the said Prisme Pendent, raising one of its ends above the Horizontal Plane a yard or two at pleasure, we have let the ball (as I said) descend along the Groove, observing, in the manner I shall tell you presently, the Time which it spent in running it all, repeating the same observation again and again to assure ourselves of the Time, in which we never found any difference, no not so much as the tenth part of one beat of the Pulse. Having done, and precisely ordered this business, we made the same Ball to descend only the fourth part of the length of that Groove: and having measured the time of its descent, we alwaies found it to be punctually half the other. And then making trial of other parts, examining one while the Time of the whole length with the Time of half the length, or with that of 2/3, or of 3/4, or, in brief, with any whatever other Division, by Experiments repeated near a hundred times, we alwaies found the Spaces to be to one another as the square of the Times. And this in all Inclinations of the Plane, that is, of the Groove in which the Ball was made to descend. In which we observed moreover, that the Times of the descents along sundry Inclinations did retain the same proportion to one another, exactly, which anon

you will see assigned to them and demonstrated by the Author. And as to the measuring the Time: we had a good big bucket full of water hanged on high, which by a very small hole, pierced in the bottom, spirted, or, as we say, spin'd forth a small thread of Water, which we received with a small cup all the while that the Ball was descending the Groove, and in its parts: and then weighing from time to time the small parcels of water, in that manner gathered, in an exact pair of scales, the differences and proportions of their Weights gave justly the differences and proportions of the Times; and this with such exactnesse, that, as I said before, the trials being many and many times repeated, they never differed any considerable matter.

1. What important features of scientific method are illustrated by these experiments?

2. Express the results of the experiments by formulae.

3. What do you think of the accuracy of Galileo's method of measuring time?

4. Rewrite the whole passage in simple modern prose, as if you had performed the experiments yourself.

II

Mean Monthly Temperature (° *F.*)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
A.	47	49	53	60	68	76	81	80	74	67	57	51
B.	84	83	84	84	82	79	76	78	82	85	86	85
C.	58	57	55	51	47	44	41	44	47	51	53	56
D.	75	74	70	64	58	53	51	53	57	62	67	72
E.	39	39	41	45	51	55	59	58	54	48	42	39
F.	74	75	78	82	85	82	79	79	79	81	79	76

Mean Monthly Rainfall (*inches*)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
A.	2·0	1·5	1·3	0·8	0·8	0·7	0·3	0·4	0·6	1·7	2·9	2·4	15·4
B.	15·3	13·0	9·7	4·5	0·7	0·2	0·1	0·1	0·5	2·1	5·2	10·3	61·7
C.	3·2	2·3	2·6	2·7	3·4	3·0	2·9	3·5	2·4	2·4	2·9	3·3	34·6
D.	0·7	0·7	1·0	1·8	2·8	3·1	2·7	2·5	2·0	1·7	1·2	1·0	21·2
E.	3·0	3·1	2·8	2·2	2·6	2·4	3·1	3·8	2·5	3·7	3·5	4·0	36·8
F.	0·1	0	0	0·1	0·5	20·6	24·6	14·9	10·9	1·8	0·5	0·1	74·1

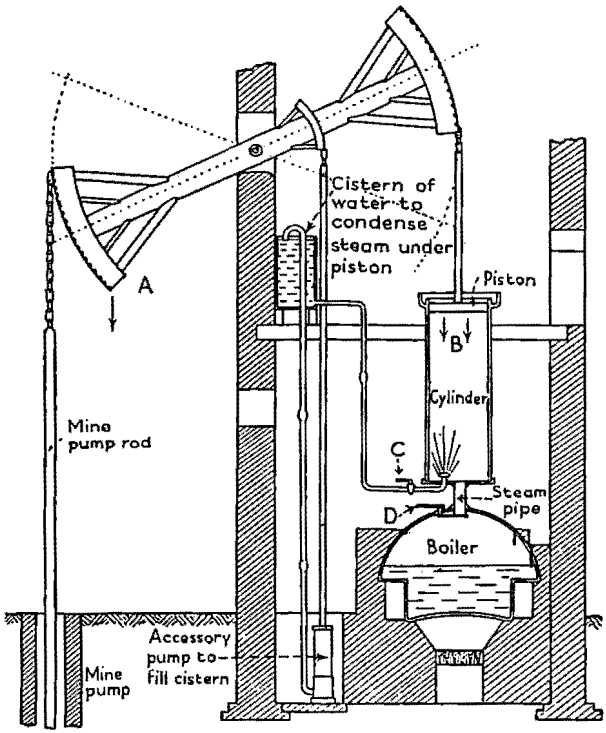
The above tables show temperature and rainfall statistics for six meteorological stations of which three are in the northern and three in the southern hemisphere. They would be normally classified by geographers as belonging to three climatic types, there being one example above of each type in either hemisphere.

1. Group the stations into pairs according to the type of climate, giving reasons for your pairing.

2. Describe the main features of temperature and rainfall of each of your climatic types.

3. What main difficulty arises in comparing statistics relating to different hemispheres, and how could it most easily be overcome?

III



A. *Weight of mine pump rod pulls piston up after down stroke*

B. *Weight of air forces piston down, when steam condenses owing to injection of cold water*

C. *Injection water-cock, open at end of up stroke, sprays water* below *piston*

D. *Steam valve, open during up stroke, admits steam from boiler*

Diagram of Newcomen's atmospheric engine, 1712

Write a concise description explaining the mechanism of Newcomen's Engine which could be understood by the lay reader *without reference to the diagram.*

IV

You are the navigating officer of a ship which has been sunk on 23 August in the Atlantic in a position latitude 7° 35′ N., longitude 19° 30′ W., approx. Together with some of the crew you have got away in the ship's lifeboat, which has sails and is equipped with a compass, a sextant (for measuring the altitude of heavenly bodies above the horizon), and an accurate chronometer set to Greenwich Mean Time. The nearest land is the coast of West Africa, and you have set your course for Freetown (latitude 8° 20′ N., longitude 13° 15′ W., approx.)

Using the information given below under A and B, answer the questions that follow.

A. *General information about navigation*

1. 1′ of latitude or longitude = 1 nautical mile: 1° = 60 n.m. (For longitude this figure is correct only at the equator. But as you are so near the equator you can base your calculations on it.)

2. The altitude of the pole star above the horizon gives the observer his latitude north of the equator in degrees and minutes.

3. The altitude of the sun at its zenith (highest point above the horizon) at noon will also give the latitude of the observer if it is first subtracted from 90° and this figure then subtracted from the sun's declination (see table below).

4. Longitude may be reckoned by the time interval between 12.00 (G.M.T.) and the observed time of a chronometer when the sun is at its zenith. For every 4 minutes after 12.00 that this occurs the observer is 1° W. of the Greenwich Meridian (or 1 min. = 15′ of longitude).

5. Similarly the time interval between the observed

time of sunset and the time of sunset given in the Nautical Almanac for the Greenwich Meridian (on that latitude) represents the number of degrees and minutes the observer is west of the Greenwich Meridian (again 4 min. = 1°, &c.).

B. *Other information*

1. Table of sun's declination (i.e. the angle between the sun's annual path and the equator):

Date	*Angle of declination*
Aug. 23	11° 42′
24	11° 21′
25	11° 00′
26	10° 40′
27	10° 20′

2. Time of sunset on the Greenwich Meridian on latitude 8° approx.:

Time of sunset (G.M.T.)
18.12
18.12
18.12
18.11
18.11

3. Observations noted in the boat's log:

Date	Estimated noon position	Course set at noon	Wind at noon	Alt. and time of sun at zenith	Alt. of pole star at dusk	Obs. time of sunset
Aug. 23	7° 35′ N. 19° 30′ W.	E.	SW. light	85° 53′ 13.18 hrs.	..	..
24	7° 00′ N. 18° 30′ W.	NE.	S'ly light	85° 39′ 13.14 hrs.	(Cloud)	(Cloud)
25	.. ..	NE.	S'ly good	(Cloud)	7° 45′	19.23 hrs.
26	8° 20′ N. 17° 15′ W.	E.	SW. good	*a *b	..	..
27	*c *d	E.	SW. good	88° 00′ 13.05 hrs.	*e	*f

1. Give the correct information for the spaces marked *a, *b, *c, *d.

2. Draw a scale chart of the boat's course, marking with dates its approximate position each day at noon.

3. What was your average speed in knots (nautical miles per hour) from noon to noon between 26 and 27 August?

4. Supply the correct information for the spaces marked *e, *f.

5. How would you account for the southerly drift of the boat between 23 and 24 August, despite the easterly course set?

6. What would be your estimated date of arrival at Freetown? Assume that the wind remains constant. Show how you reach your answer.

V

1. A bar suspended from one end and swinging from *A* to *B* and back is observed to take the following times according to its length:

Length	2 ft.	8 ft.	72 ft.	128 ft.
Time	1·57 sec.	3·14 sec.	9·42 sec.	12·56 sec.

(*a*) What general principle about a swinging bar can be derived from the above figures?

(*b*) How long will the bar take to travel from *A* to *B* and back if it is 32 ft. long?

2. A car, UND 696, travelling from Altrincham to Burnley is observed to take the following times:

	min.	min.	min.	min.
Mon. Dec.	3rd—75	10th—70	17th—78	24th—79
Tues. ,,	4th—76	11th—73	18th—76	25th—..
Wed. ,,	5th—74	12th—70	19th—79	26th—..
Thurs. ,,	6th—73	13th—74	20th—79	27th—73
Fri. ,,	7th—77	14th—72	21st—76	28th—72
Mon. June	2nd—63	9th—65	16th—60	23rd—66
Tues. ,,	3rd—62	10th—64	17th—60	24th—64
Wed. ,,	4th—64	11th—67	18th—64	25th—65
Thurs. ,,	5th—66	12th—63	19th—63	26th—63
Fri. ,,	6th—62	13th—62	20th—61	27th—64

(*a*) What times for the journeys of the car on 31 December and 30 June can be deduced from the above figures? Explain the grounds of your answer.

(*b*) What general principle can be derived from the above figures?

(*c*) In what ways, and why, does problem 2 differ in principle from problem 1?

VI

WHICH of the following popularly held beliefs do you consider amenable to experimental proof or disproof? If any is, you should indicate how you would set about proving or disproving it; if any is not, you should indicate why you think it is not.

1. (*a*) Cigarette ash is good for the carpet.
   (*b*) Feed a cold; starve a fever.
   (*c*) It is unlucky to walk under a ladder.
   (*d*) Weather changes occur at the new moon.
   (*e*) Men are stronger than women.

2. (*a*) Cucumbers are indigestible.
   (*b*) Men are more intelligent than women.
   (*c*) Lucky at cards; unlucky in love.
   (*d*) The moon is made of green cheese.
   (*e*) It pays to advertise.

3. (*a*) The country is going to the dogs.
   (*b*) Our futures are written in the stars.
   (*c*) Men are descended from monkeys.
   (*d*) God can work miracles.
   (*e*) Red sky at night, shepherd's delight; red sky in the morning, shepherd's warning.

VII

THE following tables give information about purchases of consumer goods in the U.K., and the U.S.A., and Canada, before and during the Second World War. Using these figures as a basis, write a brief account of the differences in the way in which the pattern of life in the three countries was affected by the war.

A. *Pre-war pattern of consumer purchases*

(Value of purchases in the various groups expressed as a percentage of the total value)

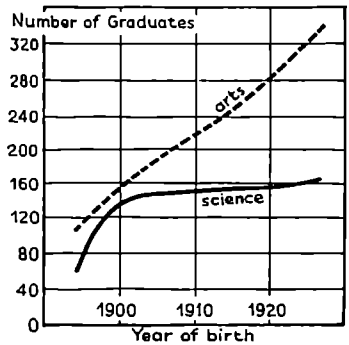
	U.K. '38	U.S.A. '39	Canada '39
Household goods	7	8	6
Alcohol and tobacco	11	8	7
Clothing	11	11	12
Motor vehicles and their operation	3	7	8
Food	29	21	23
Housing, fuel, electricity	16	18	16
Personal effects, reading matter, amusements, transport, and posts	12	9	11
Miscellaneous services	11	18	17
	100	100	100

B. *Percentage changes in purchases per head*[1] *for the same groups, during the war*

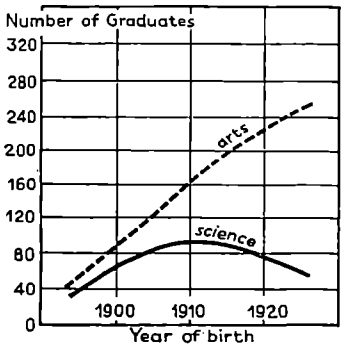
	U.K. 1938–44	U.S.A. 1939–44	Canada 1939–44
Household goods	−82	−23	−24
Alcohol and tobacco	8	33	24
Clothing	−34	23	22
Motor vehicles and their operation	−95	−52	−52
Food	−11	8	13
Housing, fuel, electricity	5	23	10
Personal effects, &c.	8	38	23
Miscellaneous services	−33	19	5

[1] Valued at constant prices.

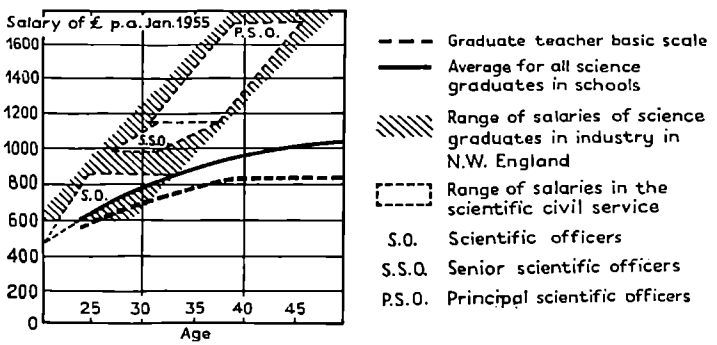
VIII



A. *Numbers of graduates teaching in 66 representative schools in NW. England.*



B. *Numbers of graduates with* 1st or 2nd class degrees *teaching in the same group of schools*



C. *Comparative salaries in industry, the civil service, and teaching*

Write for a serious newspaper a leading article of 450–500 words, based on the three graphs given above, entitled 'Scarce Science Masters'. You should include:

1. A straightforward description of the present position as revealed by the figures.

2. An estimate of how you think the situation may develop in the next fifteen years if no action is taken.

3. A discussion of possible action (together with its difficulties) to increase the number of good science masters.

IX

WHAT makes a Herring Gull chick instinctively peck for its food in a particular place?

'Is it not amazing that such a tiny chick, just emerged from the egg-shell, not only "knows" how to beg and swallow food, but also where and when to expect it? It "knows" that the parent bird provides the food, and it "knows" that it must come from the bill-tip, for it is almost exclusively at the parent's bill-tip that it aims its persistent pecking. In the language of the behaviour student, the begging behaviour is a reaction to stimuli provided by the adult bird. The reaction is innate and it is obviously released by very special stimuli which the parent bird alone can provide, and which enable the chick to distinguish the parent's bill-tip from anything else it may encounter in its world. We naturally were interested in the nature of these stimuli.'

The parent's head is white and its bill yellow, with a red patch towards the end of the lower jaw. 'That chicks were responding to the red patch was obvious; however, as the (dummy) bill without red did also elicit some response, there must be more in a parent bird's bill that stimulates the chick.'

In a long series of experiments the author, Dr. Tinbergen, by the use of specially constructed dummy gull's heads and other objects, collected among other information the data given in the tables below. You are asked to write an explanatory article on the basis of these tables, stating such conclusions as they warrant, and in particular showing which characteristic features of the parent gull provide the stimuli for the chick's instinctive response, and which features appear to be irrelevant. In each table the number given represents the number of pecking attempts made by the chick at the dummy in question, the final total being scaled to 100, except in the last table.

1. *Dummy head true to life: bill-patches of varying colour*

Red patch	100
Black patch	86
Blue patch	71
White patch	50
No patch	25

2. *Dummy head true to life: no bill-patch: bill colour varied*

Red bill	100
Yellow bill	50
Blue bill	49
Black bill	47
Grey bill	38
White bill	52

3. *Dummy head true to life: effect of patch* v. *no patch*

Yellow bill, red bill-patch	100
Red bill, no patch	82

4. *Dummy head true to life: yellow beak, red patch: head colour varied*

White head	100
Green head	97
Yellow head	83
Red head	93
Blue head	95
Grey head	88

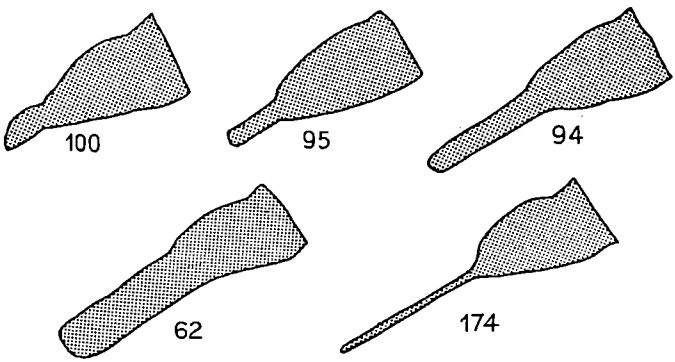
5. *Differently shaped dummies: effect of presence or absence of head*

Normal head present	100
One-third of head present	92
No head, only bill present	94

6. *Shape of head varied: both had yellow bill and red patch*

Gull's head	100
Cock's head	91

7. *Head of dummy true to life: shape of bill varied: first shape true to life*



X

In the following tables the columns A, B, and C are arranged in chronological order. Column C is the latest and refers roughly to 1955.

1. Suggest approximate dates for columns A and B, giving at least one reason for your choice in each case.

2. Certain figures are marked with symbols (*, †, ‡, §, ¶). Write short comments on anything you find significant or interesting about these figures. Those bearing the same symbol should be considered together.

3. On the assumption that you are a civil servant in the Ministry of Labour, write a memorandum of 300–400 words approx. on the basis of the data given, which should include: (*a*) a factual survey of the situation revealed, and (*b*) reasoned comments on any trends which you consider healthy and in need of encouragement in the national interest, or unhealthy and in need of corrective action by the Ministry or Government.

Approximate distribution of the working population in Great Britain in June each year, in 1,000's

Occupation	A	B	C
Armed forces	400	5,100	800
Industries (metal, engineering, vehicles, ships, chemicals, explosives)	2,800*	4,300	3,900*
Other manufacturing industries	3,500	2,500	3,300
Building and civil engineering	1,300	700	1,400
Agriculture and fisheries	900*	1,100*	1,000*
Mining and quarrying	800	800	800
Transport and shipping	1,200	1,300	1,500
Distributive trades	2,900†	2,000	2,400†
National and local government service (civil)	1,400‡	2,000	2,200‡
Other occupations	2,600	1,800	2,500
Registered insured unemployed	1,700	100§	400
Total working population	19,500	21,600¶	20,300

D. HISTORICAL PROBLEMS

I

WRITE a *biography* of Christopher Turquoise (an imaginary character) in about 400 words, based on the information given below. Your biography should include *comment on his work and his personality*, and would be expected to *make sense* of the course of its subject's life; in this instance there is one main problem which should take up a fair proportion of your space:

A. *Biographical details*

1916 Born at Rio de Janeiro, son of John Turquoise, British Consular Service, and Luisa (*née* Lisboa), Brazilian artist.
1918 Family moved to Genoa.
1922–6 Educated by a succession of governesses of various nationalities.
1925 Family moved to New York.
1926–30 Attended local State ('public') school in New York City.
1930–4 At Harchester (English Public School).
1934–7 At Oxford.
1935 Published *Dead Sea Fruit* (verse): a failure.
1937 Wrote *Déjeuner aux Enfers*, a symbolical satirical comedy in French: produced in Paris: well received by critics, but not a popular success.
1938 Published *Ariel's Humbler Province* (verse): very limited success. English version of *Déjeuner aux Enfers* (*Luncheon in Hades*) produced in London: complete failure. Married Sybilla, daughter of Count Fosco-Formio of Milan.
1939–45 Served in R.A.F.
1942 Death of wife.

1945 Published *Head of Unknown Woman* (novel: thriller): best seller. Invited to Hollywood to direct *Desire of my Heart* from his own script.
1946 Married Désirée Framboise. Published *Raff Chaps* (verse): wildly popular. Wrote *Suites for Sweeties* (farce): produced, London: great success.
1947 *Desire of my Heart* voted 'Film of the Year' and awarded two 'Oscars'.
1948 Died.

B. *From 'The Daily Gossip' (London)*

21 June 1938. Handsome, debonair Christopher Turquoise, well known in literary circles for his modernist poetry, and dazzling Sybilla, daughter of wealthy Milanese silk-king, Count Giuseppe Fosco-Formio, made a striking pair, as they stood at the head of the main staircase at Broom's Hotel welcoming their guests after their wedding at the Piccadilly Registrar's Office. The bride will be remembered for her brilliant handling of the mammoth Rolls-Talbot when winning the European Grand Prix last summer.

10 September 1942. Mrs. Christopher Turquoise, lovely and famous racing motorist, was killed on Tuesday last near Quebec when her car overturned at a dangerous bend after a tire burst. She was alone at the time. Her husband, Christopher Turquoise, the poet, was awarded the D.F.C. last year for gallantry in the Battle of Britain, in which he was seriously wounded. He is at present instructing future pilots at an R.A.F. training centre in Canada.

30 January 1946 (Hollywood, 29 January). Christopher Turquoise, who is here for the production of his film *Desire of my Heart*, was married quietly this morning to film star Désirée Framboise. Miss Framboise (formerly English actress Mary Berry) is starring in Mr. Turquoise's film, which he is directing.

10 August 1948. The death is reported from Hollywood of Christopher Turquoise at the early age of 32. His farce *Suites for Sweeties*, which enjoyed such a great success here in 1946, has been playing to packed houses on Broadway for some months, while two of his films are in active production here and in America. A brilliant future had indeed been confidently predicted for him in the film-world. We understand that Mr. Turquoise's death was attributable to the wounds he received while serving with the R.A.F. in 1941.

II

WORK out an outline chronological table of the main events in Paul's life from about the time of the Crucifixion of Jesus Christ, based on the evidence below. As no starting date is provided, it will be necessary to work back to one by subtraction from one of the later established dates. In doing this you will find several choices open to you, depending on your interpretation of the figures in passage (1); further alternatives arise from the way you decide to interpret the relationship between passage (1) and passages (2) and (4). Since no finally 'right' answers are obtainable, you must decide for yourself which interpretation of the figures and passages you think most plausible. Then, when you have written out your chronological table, you should add short notes of justification or commentary on your decisions. Similarly elsewhere, wherever you think there is no determinate answer or where other points of doubt or interest arise, you should add a note of explanation. From your interpretation of the evidence you may also be able to form an opinion on which of the two dates for the Crucifixion is to be preferred:

A. *Dates so far obtained*

A.D. 30 *or* 33	The Crucifixion of Jesus Christ.
46/7	Famine in Jerusalem.
51	Gallio becomes pro-consul of Achaia.
59	Paul sent from Caesarea to Rome for trial.
64	Persecution of Christians at Rome under Nero.

B. *Evidence from contemporary sources*

1. *Paul's Letter to the Galatians, chs. 1 and 2.* I persecuted the Church of God, but when it pleased God to reveal His Son[1] to me, I went to Arabia, and again I returned unto Damascus. Then after three years I went up to Jerusalem to visit Cephas (Peter) and tarried with him fifteen days. . . . Then after the space of fourteen years I went up again to Jerusalem with Barnabas, taking Titus with me, and I laid before them the Gospel which I preach to the Gentiles. And James and Cephas and John gave to me the right hand of fellowship, so that we should go to the Gentiles, and they unto the Jews, only asking us to remember the poor.

2. *Acts of the Apostles, ch. 11.* And Barnabas went forth to Tarsus to seek for Paul, and brought him into Antioch. And for a whole year they gathered together with the church at Antioch and taught the people. And a great famine came to pass. And the disciples, every man according to his ability, determined to send relief unto the elders by the hand of Paul and Barnabas.

3. *Acts of the Apostles, chs. 13–14* (*summary*). Paul and Barnabas returned to Antioch from Jerusalem. The following summer, at earliest, they were sent to make their first missionary journey to Asia Minor; they returned to Antioch on its completion.

4. *Acts of the Apostles, ch. 15* (*abridged*). [Sometime after

[1] This was a vision: Jesus Christ had already been crucified.

their return to Antioch] the brethren appointed Paul and Barnabas and certain others that they should go up to Jerusalem to the apostles and elders. [A council was held in Jerusalem to consider Paul's mission to the Gentiles and whether Gentiles need obey the Jewish law. But] it seemed good to the Holy Ghost and the Apostles to lay no further burdens on them. And when they were dismissed, Paul and Barnabas came down to Antioch.

5. *Acts of the Apostles, chs. 15–18 (abridged)*. And after some days Paul chose Silas, and they went forth through Syria and Cilicia to Derbe and Lystra, and through the cities of Phrygia and Galatia and Troas, and thence to Philippi in Macedonia, and they came to Thessalonica. And they that conducted Paul brought him to Athens . . .. And he dwelt there a year and six months, teaching the word of God.

6. *Acts of the Apostles, ch. 18*. But when Gallio became proconsul of Achaia, the Jews brought Paul to his judgment seat in Corinth. But he drave them out. And Paul having tarried after this many days took his leave and sailed thence for Syria; and he went down to Antioch.

7. *Acts of the Apostles, chs. 18–23 (summary)*. The next year Paul set out on his third missionary journey to Ephesus and neighbourhood; he continued there for two or three years. Then he departed for Macedonia and Greece. After three months he returned through Macedonia, where he spent Easter, and thence to Troas and Jerusalem.

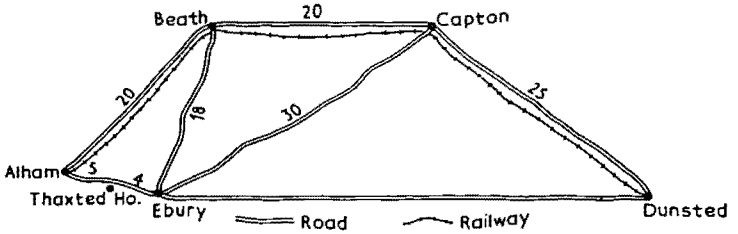
8. *Acts of the Apostles, chs. 23–28 (summary)*. Paul was arrested in Jerusalem, imprisoned for two years in Caesarea, and set out for Rome. The ship was wrecked by autumnal gales and the crew and prisoners landed in Malta. They left again for Rome in early spring, and Paul, on landing, 'abode two whole years [under house-arrest] in his own hired dwelling'.

9. *Clement's Letter to the Corinthians (c. A.D. 95) on the Neronian Persecutions.* Let us set before our eyes the good apostles: Peter, who having borne his witness, went to his due place of glory; Paul pointed out the price of endurance and received the noble renown of his faith.

III

MRS. JELLABY, of Thaxted House, Ebury, was found dead at 10.30 p.m. by her maid. The doctor said that she had been dead not more than 25 minutes; examination showed death to have been due to poison, mixed with her coffee. By her will Mrs. Jellaby left £15,000 to her cousin, Mr. Tumbrill. The will had been completed a month before by her solicitor, Mr. Axeman.

The inspector in charge of the case narrowed the field to four suspects, as being the only persons who could have known the contents of the will, and he noted down the following facts about them and the case. They are given below as they appeared in his notebook, and may all be taken as true *as they stand.*



Mr. and Mrs. Tumbrill live at Beath, 18 miles from Ebury. Ebury is 4 miles from Thaxted House.

Mrs. Tumbrill is sister to Mrs. Axeman; she and Mr.

Axeman live in Capton, near the station, 20 miles from Beath, and 30 miles from Ebury. Good roads link all these towns. There is also a railway from Capton (trains come there from Dunsted, 25 miles away) to Beath and then on to Alham, 20 miles away. Alham Station is 5 miles from Thaxted House in the opposite direction from Ebury.

Mrs. Jellaby's maid, before going off duty, always left a drink of strong coffee in a thermos for Mrs. Jellaby's 'night-cap' which she took about 10.15 p.m. each evening. The evening of her death was the maid's evening off; the maid went to the cinema in Alham at 7 p.m.

Mr. Tumbrill left home in his car at 5.30 p.m. for an annual dinner in Dunsted. Mr. Axeman drove his car to the station that day to catch his usual morning train to Alham for his once-weekly visit to a colleague's office. Mrs. Tumbrill was seen buying cigarettes at the station tobacco kiosk in Beath at 5.45 p.m., and she was noticed by the ticket inspector when she got off the 10.45 p.m. train from Alham; there were several other passengers.

Mrs. Axeman was seen leaving her house by the boy who delivered the evening paper at 6.20 p.m. She was walking in the direction of the Capton–Ebury road. The railwayman at Alham Station said that he did not notice Mr. Axeman catching his usual train back to Capton, but that he believed he was sometimes delayed at work and had an evening meal in Alham on these occasions. He did, however, see two women, the only two passengers from Alham that evening, boarding the 9.58 p.m. train for Beath. The night-watchman at the Beath Cottage Hospital said Mr. Tumbrill returned in evening dress in his car at 1 a.m. Guests confirmed his presence at the dinner. A garage hand filled up the Axeman's car with petrol at 8.50 p.m. in Beath; Mr. Axeman was driving. The chairman of the Ebury Women's Institute said that Mrs. Tumbrill attended their meeting that evening from 7.45 p.m. until 9.20 p.m. when Mrs. Tumbrill said she wanted to go to

catch a bus. Mrs. Axeman's neighbour saw her walk into the house at 11.40 p.m., and heard a car arriving and being driven into the garage about 9.45 p.m.

A British Railways time-table gives the following times for all the trains to and from Alham and Dunsted:

	a.m.	p.m.	
Alham	7.58	4.58	9.58
Beath	8.48	5.48	10.45
Capton	9.35	6.35	11.35
Dunsted	10.20	7.20	12.20 a.m.
Dunsted	8.00	3.30	8.30
Capton	8.45	4.15	9.15
Beath	9.32	5.02	10.02
Alham	10.22	6.52	11.52

As part of the regular bus service between Alham and Ebury, a bus leaves Ebury every evening for Alham at 9.28 p.m. arriving at Alham at 9.48 p.m.

1. What piece(s) of evidence in the above notes prove(s) the following theory wrong? 'Mrs. Tumbrill went by train to Alham, caught a bus to Thaxted House, poisoned the coffee in the thermos, and went on to her meeting in Ebury.'

2. Give as detailed a description of the movements of the four suspects as you can.

3. State your own theory as to how the murder was committed, giving detailed reasons to show how you would support it.

4. State what further evidence and information (*not* confessions) you would then proceed to collect in order to prove your theory true.

5. In solving this problem, in what ways are your aim and method:

(*a*) similar to those of the historian?
(*b*) different from those of the scientist?

IV

WORK out an outline chronology for the life of Lysias, the Athenian orator, from the following evidence. You should first give your chronological table, and then, as in Problem II on Paul's Life, add notes on any interesting or doubtful points, showing if necessary where and why you have accepted some and rejected or discounted other pieces of the evidence:

A. *Dates already established*

464 B.C. Pericles first heard of in Athenian politics.
431 Peloponnesian War began.
429 Death of Pericles.
411–10 Government of 'The Four Hundred' in Athens.
404–3 Government of 'The Thirty Tyrants' in Athens.
399 Condemnation and death of Socrates, aged 70.
385 Birth of Demosthenes, the orator.

B. *Other evidence*

(*a*) Speech of Lysias, *Against Eratosthenes*, one of 'The Thirty Tyrants', delivered when they fell from power:

(1) 'My father Cephalus was persuaded by Pericles to come to this country, and he lived here for thirty years.'

(2) 'When "The Thirty Tyrants" were in power . . . they decided to arrest ten men, on the grounds that they were dissatisfied with the constitution; they arrested me, . . . and told me to follow to Damnippus' house. . . . Now I happened to know the house, . . . and I escaped, since by chance all three doors which I had to pass through were open.'

(*b*) Speech of Lysias delivered as an Olympiac oration in 388 B.C.

(*c*) Plato's *Republic* (written *circa* 385 B.C.). It is in the form of an imaginary dialogue; the date when it was supposed to have taken place is not specified:

(1) 'Accordingly we [Socrates and others] went with Polemarchus to his house, and there we found his brothers, Lysias and Euthydemus, and with them Thrasymachus and Charmantides and Cleitophon. There too was Cephalus, the father of Polemarchus, whom I had not seen for a long time, and I thought him very much aged.'

(2) Plato makes Socrates, during the course of his dialogue with Polemarchus, mention a certain Ismenias of Thebes as if he were well-known, although he flourished after Socrates himself was dead.

(*d*) Anonymous life of Lysias (first century A.D.):

(1) Lysias was 15 when he went to the colony of Thurii, in Italy.

(2) He stayed at Thurii for thirty years.

(3) His father Cephalus was dead when he left for Thurii.

(4) Cephalus settled originally in Athens on Pericles' invitation.

(5) Lysias returned to Athens when 'The Four Hundred' were in power.

(6) He saw Demosthenes when he (D.) was 'a lad'.

(7) He died when he was 76 or 80 or 83.

(*e*) Dionysius, the historian (first century A.D.):

'When Lysias was 15 he went to Thurii with two brothers to share in the colony which the Athenians were sending in the twelfth year before the Peloponnesian War.'

V

Read the following account of diplomatic relations.

1. Draw a sketch-map to illustrate the situation.

2. How would you apportion responsibility for the Great Utopian War?

The continent of Utopia has five great powers. The smallest is Patagonia, completely surrounded by the territories of the four other powers. She has a very competent military force, and during the last century she has acquired territories by conquest from her two westerly neighbours, Transaro and Neoslavonia, which, though larger than Patagonia, are both countries with slender economic and military resources. She needs access to the sea but could only gain this by acquiring a stretch of Coramandel, her southern neighbour, a small country but a great sea power with rich overseas possessions. The largest, wealthiest, and most powerful of the five countries is Ruritania, whose territories march with Coramandel in the south, Patagonia in the west, and Neoslavonia in the north-west.

Ruritania and Coramandel have a long-standing frontier dispute for which both countries must bear equal responsibility. The dispute threatens to lead to war, so both countries are seeking allies. Ruritania already has a defensive alliance with Patagonia, and Coramandel fears that in the event of war between herself (viz. Coramandel) and Ruritania, Patagonia will invade Coramandel to secure the coveted coastal strip. Coramandel therefore enters into a defensive alliance with Transaro, so that, if she herself is attacked by Patagonia, Transaro will come to her help, provided that she supplies the equipment which Transaro lacks. Transaro, thinking that war is imminent, is eager to seize any opportunity for invading Patagonia and winning back her conquered territories.

The king of Patagonia, seeking to counter the Transaro–Coramandel treaty, and in deadly apprehension of the

attack by Transaro, makes a defensive alliance with Coramandel. He does this without observing the diplomatic courtesies due to his great ally Ruritania, whom, in his haste, he omits to consult. His defensive alliance with Ruritania now becomes due for renewal, and Ruritania, offended by the conduct of her less powerful ally, refuses to renew the alliance. The Coramandel–Patagonian alliance does not please Transaro, since it disappoints all hope of securing the purpose for which she entered on her defensive alliance with Coramandel.

Meanwhile Neoslavonia sees an opportunity to win back from Patagonia her conquered territories. She wishes to go to war with Patagonia but she needs support, as her own resources are inadequate. Ruritania is seeking allies against Coramandel, and after the Patagonia–Coramandel treaty, Neoslavonia suggests to Ruritania a defensive alliance against Coramandel, coupled with an offensive alliance against Patagonia. Ruritania finally agrees, but is still reluctant to declare war, realizing that Neoslavonia's aims are limited to Patagonia, and that she will have to subsidize Neoslavonia with resources which she needs for her own fight against Coramandel. Neoslavonia now begins negotiations with Transaro, who is anxious to regain her lost territories from Patagonia, but who is bound by a defensive alliance to Coramandel.

The king of Patagonia is painfully aware of the hostile group which is forming, and decides that attack is the best method of self-defence. He therefore declares war on Neoslavonia before she has time to mobilize. Ruritania comes to the help of her ally Neoslavonia, Coramandel declares war on Ruritania, Transaro enters as an enemy of Patagonia, and a full-scale war results.

VI

(*a*) At al 'Ubaid, a knoll about four miles away from Ur, were dug up the remains of huts, with floors of mud and walls of mud, woodwork, and reed-matting, containing hand-made painted pottery, bits of volcanic glass, hoes and adzes of chipped and polished stone and flint, saw-toothed flints, sickles of hard-baked clay, model boats, terra-cotta figures of painted men and women, shells and shaped pieces of quartz and other transparent stones. There was only one layer of these finds.

(*b*) At Ur

1. A pit 200 feet long was dug to a depth of 30–40 feet, running from south-west to north-east. The soil was found to be in defined strata which sloped downwards from south-west to north-east. It contained household rubbish, soot, and broken fire-bricks. At the south-west end where the ground rose steeply to a high mound (40 feet high), the slope of the rubbish layers was more pronounced. To the north-east there was a gentler slope down, the strata getting thicker as they went deeper, and low down they became quite horizontal. At the extreme north-east edge objects in each stratum were packed at the bottom of a layer of smooth, muddy clay.

2. In the rubbish-filled soil graves had been dug. The rubbish strata continued below the graves. Clay tablets with inscriptions similar to but older than inscriptions in the graves were found at the north-east end of the pit. Objects found in the rubbish at all layers were of similar types, and were similar to the objects in the graves.

3. Deeper shafts were then dug, and the soil suddenly changed. Perfectly clean clay replaced the stratified rubbish. The clay went down for a depth of a little over 8 feet; the sole object found in the clay was a fossilized bone. Then as suddenly as it had begun the clay stopped and layers of

rubbish began again, but this time of quite a different kind. Now there was primitive hand-made painted pottery, flint and stone implements, volcanic glass; there was no reed-matting or woodwork, but a brick different from and older than the bricks at higher levels was found.

4. When a shaft was dug through the building of the town of Ur itself, 16 feet below a brick pavement which was contemporaneous with the graves the hand-made painted pottery, flint implements, and volcanic glass appeared, mixed with ancient bricks. These strata were followed downhill and then below the clean clay so that they were found to correspond with the lowest strata mentioned in (3).

*1. What is the significance of there being only one layer of 'finds' in (*a*)?

2. Give a short description of the people of al 'Ubaid and their life.

3. What explanation would you give to account for the sloping strata of rubbish in (*b*) (1)?

*4. What would you expect to find if you dug farther at the south-west end of the pit, continuing in a south-westerly direction ((*b*) (1))?

*5. How would you explain the lie of the rubbishy objects at the north-east end of the pit at the bottom of smooth muddy clay ((*b*) (1))?

6. If you dug from north-east to south-west, keeping at the same level all the time, what would be the relative dates of objects found in the rubbish ((*b*) (1))?

7. What does (*b*) (2) tell us about the inhabitants of the site?

8. How would you explain the 8 feet of smooth clay in (*b*) (3)?

9. How do you think the fossilized bone got into it?

10. How would you account for the difference between the contents of the strata above and below the layer of clay ((*b*) (3))?

11. What does the discovery of objects below the layer of clay in (*b*) (3) tell us about (*a*)?

12. Why, in (*b*) (4), was there no layer of clay between the brick pavement and the 'finds' 16 feet below?

13. Draw a vertical cross-section of the site at Ur, as described above, in a south-west–north-east direction.

PART TWO

IDEAS AND INTERPRETATION

> We should speak of the *improvement* rather than the *extension* of knowledge. We want more thinking about the importance of things known; . . . to get closer to the heart of things and to look once again at familiar objects in such a way that they take on a new meaning for us. Fresh and unexpected features make their appearance, and sometimes a whole landscape lights up.
>
> SIR WALTER MOBERLY, *The Crisis in the University*

A. PASSAGES ON LANGUAGE

I

THE general use of speech, is to transfer our mental discourse, into verbal; or the train of our thoughts, into a train of words; and that for two commodities; whereof one is the registering of the consequences of our thoughts; which being apt to slip out of our memory, and put us to a new labour, may again be recalled, by such words as they were marked by. So that the first use of names is to serve for *marks*, or *notes* of remembrance. Another is, when many use the same words, to signify, by their connexion and order, one to another, what they conceive, or think of each matter; and also what they desire, fear, or have any other passion for. And for this use they are called *signs*. Special uses of speech are these; first, to register, what by cogitation we find to be the cause of any thing, present or past; and what we find things present or past may produce, or effect; which in sum, is the acquiring of arts. Secondly, to show to others that knowledge which we have attained, which is, to counsel and teach one another. Thirdly, to make known to others our wills and purposes, that we may have the mutual help of one another. Fourthly, to please and delight ourselves and others, by playing with our words, for pleasure or ornament, innocently.

To these uses, there are also four correspondent abuses. First, when men register their thoughts wrong, by the inconstancy of the signification of their words; by which they register for their conceptions that which they never conceived, and thereby deceive themselves. Secondly, when they use words metaphorically; that is, in other sense than that they are ordained for; and thereby deceive others. Thirdly, when by words they

declare that to be their will, which is not. Fourthly, when they use them to grieve one another; for seeing nature hath armed living creatures, some with teeth, some with horns, and some with hands, to grieve an enemy, it is but an abuse of speech, to grieve him with the tongue, unless it be one whom we are obliged to govern; and then it is not to grieve, but to correct and amend.

1. Explain as briefly as possible what the writer means by the following:

(*a*) 'commodities' (l. 3).
(*b*) 'consequences of our thoughts' (ll. 4–5).
(*c*) 'for *this* use' (l. 13).
(*d*) 'the acquiring of arts' (l. 17).
(*e*) 'the inconstancy of the signification of their words' (l. 27).
(*f*) 'seeing nature hath . . . with the tongue' (ll. 34–38).

2. What distinction does the writer draw between:

(*a*) words as 'marks' and as 'signs'?
(*b*) 'to grieve' and 'to amend'?

In each case you should also indicate whether, and why, you think this is a justifiable or unjustifiable distinction.

3. Write down briefly in parallel columns the four uses and corresponding abuses of speech which the writer defines.

4. Here is a list of some of the uses to which language is put. State into which of the writer's classes you would put each of them, or, if you think any will not fit into his classification, define a new use or abuse of speech which will cover it:

Propaganda	Military commands
Scientific Hypotheses	Moral principles
Tongue twisters	Sea Shanties
Hymns of praise	Prayer.
Advertisements	

II

(*a*) Begoniaceae, by their anthero-connectival fabric, indicate a close relationship with anonaceo-hydroharideo-nymphaeoid forms, an affinity confirmed by the serpentarioid flexuosonodulous stem, the liriodendroid stipules, and cissoid and victorioid foliage of a certain Begonia, and if considered hypogynous, would, in their triquetrous capsule, alate seed, apetalism and tufted stamination, represent the floral fabric of Nepenthes. . . .

(*b*) If the Barclay–Butler rule be assumed valid over the entire absorption process, a knowledge of the differential heat of absorption will permit the interpolation of the excess entropy term from the Barclay–Butler line. A comparison of this term with the experimental entropy would give a measure of the configurational entropy as a function of the amount absorbed. This has been applied to some results of Crawford Tomkins: the configurational entropy corresponds closely to that calculated for an ideal localized monolayer up to about coverage, after which a sudden inflexion marks the beginning of a steep rise in partial molar configurational entropy.

(*c*) According to Strabismus, Jupiter's hump is a negative result of solar radiation, as when atmospheric absorption reaches the equatorial zone of the planet during a maximum period of rotation the albedo (at 0·44) reflects a mean density, on the outer edges, of at least 62·71. In plain language this means that the zero meridian varies with the vapour-drift from the faculae, as in the cosmostatic watercells of the nebulae of smaller planets.

(*d*) The fierce rays of the tropical sun have scorched the sands of the desert and night has fallen before the Wind Scorpion ventures out upon the chase. Armed more powerfully than any other creature, he stands for speed, for fury, for sudden death, while the Sable Goddess so cloaks his

crimes that men know not his ways nor tell of his deeds. Mysterious in life, and no less mysterious in death, we look upon his hairy body, wondering what messages those spines convey, and what kind of existence is that in which every event is a vibration, every sensation a touch.

(*e*) Of nytrobenzene liquid some ten grains
Is added to, say, fortie grains (with care)
Of nytric and sulfuric acids mixed.
The whole is heated on ye waterbath
That boils with freedom for an hour or so
Until a portion thence withdrawn and dropt
Into a bowl of water solid is.
(Beware! this operation should be done
Or out of doors or underneath a hood!)
Ye yellow stuff is next yfiltered off
From supernatant liquid at ye pump
Washed with clean water and then dried upon
A clean and porous plate of porcelane.

(*f*) This preparation must be performed in a fume-cupboard, because nitrous fumes are evolved during the nitration.

Place 15 c.c. of fuming nitric acid (d. 1·5) in a 150 c.c. flask and add carefully with shaking 20 c.c. of conc. sulphuric acid and then some fragments of unglazed porcelain. Fit a reflux air condenser to the flask and then add slowly down the condenser 12 c.c. of nitrobenzene; do not add more than 3 c.c. at a time and after each addition shake the flask thoroughly to ensure mixing of the contents. Now heat the flask on a boiling water-bath for 1 hour, both the flask and the condenser being securely clamped in position, as the acid fumes which are evolved may attack and weaken the cork. Shake the flask vigorously from time to time. Finally pour the mixture carefully with stirring into an excess of cold water (about 300 c.c.) when the heavy oily dinitrobenzene will rapidly solidify. Filter the

crystalline material at the pump, wash thoroughly with water to remove all acid, and then drain as completely as possible.

1. Which of the passages seems to you to convey (*a*) most information, (*b*) least information, and (*c*) the clearest information, and why?

2. Comment on the concept of 'information' as implied by your answer.

3. Do any of the passages seem to you less than wholly serious? Indicate from the text what makes you choose any passage.

4. Compare (*e*) and (*f*) (which deal with the same preparation).

5. What reflections about the nature of scientific language do you feel inclined to make?

III

So revolutions broke out in city after city, and in places where the revolutions occurred late the knowledge of what had happened previously in other places caused still new extravagances of revolutionary zeal, expressed by an elaboration in the methods of seizing power and by unheard-of atrocities in revenge. To fit in with the change of events, words, too, had to change their usual meanings. What used to be described as a thoughtless act of aggression was now regarded as the courage one would expect to find in a party member; to think of the future and wait was merely another way of saying that one was a coward; any idea of moderation was just an attempt to disguise one's unmanly character; ability to understand a question from all sides meant that one was totally unfitted for action. Fanatical enthusiasm was the mark of a real man,

and to plot against an enemy behind his back was perfectly legitimate self-defence. Anyone who held violent opinions could always be trusted, and anyone who objected to them became a suspect. To plot successfully was a sign of intelligence, but it was still cleverer to see that a plot was hatching. If one attempted to provide against having to do either, one was disrupting the unity of the party and acting out of fear of the opposition. In short, it was equally praiseworthy to get one's blow in first against someone who was going to do wrong, and to denounce someone who had no intention of doing any wrong at all. Family relations were a weaker tie than party membership, since party members were more ready to go to any extreme for any reason whatever. These parties were not formed to enjoy the benefits of the established laws, but to acquire power by overthrowing the existing régime; and the members of these parties felt confidence in each other not because of any fellowship in a religious communion, but because they were partners in crime. If an opponent made a reasonable speech, the party in power, so far from giving it a generous reception, took every precaution to see that it had no practical effect.

Revenge was more important than self-preservation. And if pacts of mutual security were made, they were entered into by the two parties only in order to meet some temporary difficulty, and remained in force only so long as there was no other weapon available. When the chance came, the one who first seized it boldly, catching his enemy off his guard, enjoyed a revenge that was all the sweeter for having been taken, not openly, but because of a breach of faith. It was safer that way, it was considered, and at the same time a victory won by treachery gave one a title for superior intelligence. And indeed most people are more ready to call villainy cleverness than simple-mindedness honesty. They are proud of the first quality and ashamed of the second.

1. (*a*) Describe, in not more than 50 of your own words, what happened to language in the revolutions Thucydides portrays.

(*b*) What *reason* does he give to account for this?

2. (*a*) Give two explanations which would have been thought to *justify* violent or deceitful action in a revolution.

(*b*) Suggest two *motives* which prompted men to act in these ways.

3. Describe in not more than 200 words an imaginary incident in the life of a revolutionary hero, from which Thucydides might have drawn his generalizations.

4. EITHER Illustrate the author's thesis about words by two examples drawn from present-day politics.

OR Write a speech of not more than 200 words, suited to a contemporary situation, using the verbal and rhetorical technique described by Thucydides in this passage.

IV

NEWSPEAK was the official language of Oceania and had been devised to meet the needs of Ingsoc, or English Socialism.... The purpose of Newspeak was not only to provide a medium of expression for the world-view and mental habits proper to the devotees of Ingsoc, but to make all other modes of thought impossible. It was intended that when Newspeak had been adopted once and for all and Oldspeak (or Standard English) forgotten, a heretical thought—that is, a thought diverging from the principles of Ingsoc—should be literally unthinkable, at least so far as thought is dependent on words. Its vocabulary was so constructed as to give exact and often very subtle expression to every meaning that a party member could properly wish to express, while excluding all other meanings and also the possibility of arriving at them by indirect methods. This was done partly by the invention of new

words, but chiefly by eliminating undesirable words and by stripping such words as remained of unorthodox meanings, and so far as possible of all secondary meanings whatever. To give a single example. The word 'free' still existed in Newspeak, but it could only be used in such statements as 'This dog is free of lice' or 'This field is free from weeds'. It could not be used in its old sense of 'politically free' or 'intellectually free', since political and intellectual freedom no longer existed even as concepts, and were therefore of necessity nameless. Quite apart from the suppression of definitely heretical words, reduction of vocabulary was regarded as an end in itself, and no word that could be dispensed with was allowed to survive. Newspeak was designed not to extend but to *diminish* the range of thought, and this purpose was indirectly assisted by cutting the choice of words down to a minimum.

Newspeak was founded on the English language as we now know it, though many Newspeak sentences, even when not containing newly-created words, would be barely intelligible to an English-speaker of our own day. Newspeak words were divided into three distinct classes, known as the A vocabulary, the B vocabulary (also called compound words), and the C vocabulary.

[*There is then a description, which has been omitted, of the A vocabulary.*]

The B vocabulary consisted of words which had been deliberately constructed for political purposes: words, that is to say, which not only had in every case a political implication, but were intended to impose a desirable mental attitude upon the person using them. Without a full understanding of the principles of Ingsoc it was difficult to use these words correctly. In some cases they could be translated into Oldspeak, ... but this usually demanded a long paraphrase and always involved the

loss of certain overtones. . . . Consider, for example, such a typical sentence from a *Times* leading article as 'Oldthinkers unbellyfeel Ingsoc'. The shortest rendering that one could make of this in Oldspeak would be: 'Those whose ideas were formed before the Revolution cannot have a full emotional understanding of the principles of English Socialism.' But this is not an adequate translation. To begin with, in order to grasp the full meaning of the Newspeak sentence quoted above, one would have to have a clear idea of what is meant by Ingsoc. And in addition only a person thoroughly grounded in Ingsoc could appreciate the full force of the word 'bellyfeel', which implied a blind, enthusiastic acceptance difficult to imagine today; or of the word 'oldthink', which was inextricably mixed up with the idea of wickedness and decadence. But the special function of certain Newspeak words, of which 'oldthink' was one, was not so much to express meanings as to destroy them. These words, necessarily few in number, had their meanings extended until they contained within themselves whole batteries of words which, as they were sufficiently covered by a single comprehensive term, could now be scrapped and forgotten. . . .

It will be seen that in Newspeak the expression of unorthodox opinions above a very low level, was wellnigh impossible. It was of course possible to utter heresies of a very crude kind, a species of blasphemy. It would have been possible, for example, to say 'Big Brother is ungood'. But this statement, which for an orthodox ear merely conveyed a self-evident absurdity, could not have been sustained by reasoned argument, because the necessary words were not available. Ideas inimical to Ingsoc could only be entertained in a vague wordless form, and could only be named in very broad terms which lumped together and condemned whole groups of heresies without defining them in doing so.

One could, in fact, only use Newspeak for unorthodox purposes by illegitimately translating some of the words back into Oldspeak. For example, 'All mans are equal' was a possible Newspeak sentence, but only in the sense in which 'All men are redhaired' is a possible Oldspeak sentence. It did not contain a grammatical error, but it expressed a palpable untruth—i.e. that all men are of equal size, weight, or strength. The concept of political equality no longer existed, and this secondary meaning had accordingly been purged out of the word 'equal'. In 1984, when Oldspeak was still the normal means of communication, the danger theoretically existed that in using Newspeak words one might remember their original meanings. In practice it was not difficult for any person well grounded in 'double-think' to avoid doing this, but within a couple of generations even the possibility of such a lapse would have vanished. A person growing up with Newspeak as his sole language would no more know that 'equal' had once had the secondary meaning of 'politically equal', or that 'free' had once meant 'intellectually free', than, for instance, a person who had never heard of chess would be aware of the secondary meanings attaching to 'queen' and 'rook'. There would be many crimes and errors which it would be beyond his power to commit, simply because they were nameless and therefore unimaginable.

1. Comment on the consistency of the following four quotations with each other:

(*a*) 'at least so far as thought is dependent on words' (ll. 11–12).

(*b*) 'political and intellectual freedom no longer existed even as concepts, and were therefore of necessity nameless' (ll. 26–28).

(*c*) 'Ideas . . . could only be entertained in a vague wordless form' (ll. 84–86).

(*d*) 'they were nameless and therefore unimaginable' (ll. 113–14).

2. *(*a*) Why are 'All men are equal' and 'All men are red-haired' different kinds of sentence in Oldspeak?

(*b*) Why are 'All mans are equal' and 'All mans are red-haired' the same kind of sentence in Newspeak?

(*c*) Why are 'Big Brother is ungood (wicked)' in Newspeak and 'Churchill is wicked' in Oldspeak different kinds of sentence?

3. (*a*) What was Newspeak designed to do?

(*b*) Explain the ways in which it achieved this purpose.

4. (*a*) Suggest three other Oldspeak words which would have suffered the same fate in Newspeak as 'equal' and 'free'. Indicate how this would have happened.

(*b*) Write short notes on the present-day meaning and usage of: *scientific; liberal; highbrow; security.

5. In what ways do the purposes for which we use language today differ from the function of Vocabulary B words in Newspeak? Illustrate your answer with examples.

V

THE other project was a scheme for entirely abolishing all words whatsoever; and this was urged as a great advantage in point of health as well as brevity. For it is plain that every word we speak is in some degree a diminution of our lungs by corrosion, and consequently contributes to the shortening of our lives. An expedient was therefore offered, that since words are only names for things it would be more convenient for all men to carry about them such things as were necessary to express the particular business they are to discourse on. And this invention would certainly have taken place, to the great ease as well as health of the subject, if the women in conjunction with the vulgar and illiterate had not threatened to raise a rebellion, unless they might be allowed the liberty to speak with their tongues, after the manner of their forefathers. Such constant, irreconcilable enemies of science are the common

people. However, many of the most learned and wise adhere to the new scheme of expressing themselves by things, which hath only this inconvenience attending it: that if a man's business be very great, and of various kinds, he must be obliged, in proportion, to carry a greater bundle of things upon his back, unless he can afford one or two strong servants to attend him. I have often beheld two of those sages almost sinking under the weight of their packs, like pedlars among us; who when they met in the street would lay down their loads, open their sacks, and hold conversation for an hour together; then put up their implements, help each other to resume their burdens, and take their leave.

But for short conversations a man may carry implements in his pockets and under his arms, enough to supply him, and in his house he cannot be at a loss; therefore, the room where company meet who practise this art is full of all things ready at hand requisite to furnish matter for this kind of artificial converse.

Another great advantage proposed by this invention was that it would serve as an universal language to be understood in all civilized nations, whose goods and utensils are generally of the same kind, or nearly resembling, so that their uses might easily be comprehended. And thus ambassadors would be qualified to treat with foreign princes or ministers of state to whose tongues they were utter strangers.

1. Give a short statement (not more than 50 words) of the *theory* of the nature and function of language suggested or presupposed by this description.

2. Explain, and illustrate from the text, how the writer indicates his disagreement with the theory.

3. Write a critical analysis of the theory in 150–300 words, pointing out its shortcomings *as a theory* about both the nature and function of language.

B. PASSAGES ON POLITICS AND MORALS

I

We have a recognized place and function in society. Our job or place in society carries with it duties which are expected of us, which we normally accept. As an employer might say to any man whom he takes on and to whom he has offered a special job: 'Now do you understand your duties?', so we all of us roughly understand our position and the behaviour which it involves. When, for example, we are considering whether we shall go in for a new job, we say to ourselves, 'It will mean that we shall have to be prepared to do this or that', as we might say in criticism of a man whom we thought was lazy: 'He ought not to have taken on the job, if he wasn't prepared to shoulder its responsibilities.' We think of those duties as belonging to or arising out of the job or out of the station in society. They are there, we think, to be carried out by anyone who occupies that station or takes on that job: duties of a husband or a wife or a citizen or a town councillor; or duties of a teacher or doctor or employer of labour or of a craftsman.

We sometimes, as I have implied, call those duties responsibilities. One form in which I am sometimes asked to write testimonials to character is: 'Can you recommend him for a responsible position?' That sounds as if we shared out the necessary tasks in the combined work of society and each of us said, 'I'll see to this. I'll answer for this if someone else will answer for that.' We do not, of course, do anything so conscious and thought-out as that in the general organization of society, but we do all feel responsible to other people in carrying out the duties of our . . . job partly because we

know that other people are similarly carrying out their jobs. This morality is social and implies mutual interdependence and mutual responsibility.

This conduct which we recognize to be obligatory upon us is expected of us. That is indeed how we ordinarily learn it. From our earliest years it is made clear that there are certain ways in which we, as members of our circle, are expected to behave. As we shall see, a good deal of the morality of my station and its duties is reasonable and we might be induced to conform to much of it because it is reasonable. But we learn what is expected of us and the notion of being good or bad, dutiful or undutiful, in a much simpler and more elementary way—from the approval and disapproval of our elders and our companions from our earliest years. There is a pleasant story of a very modern and advanced young mother saying to her child, 'You must not say a thing is wrong. That's naughty.' So hard is it for anyone to give up the habit of social approval and disapproval. Nor is there any reason why one should. On the contrary. It is of the greatest importance to us all that social rules should be observed, and we normally have to be taught by such social approval or disapproval the soundness and advantages of social rules which we may afterwards come to appreciate for ourselves. 'Every man did what was right in his own eyes' is a description not of an ideal but of an anarchical society.

That we are responsible persons means, then, that we acknowledge our responsibilities; that means that we acknowledge our obligations, that we are bound, not free to do precisely as we please, because others depend upon our behaviour.

But, paradoxically enough, responsibility also means being free. If you complain: 'He refused to treat me as a responsible person', or 'He would not give me

a responsible job', you mean that you were not left to make decisions according to your own judgement. A responsible position is one where you are, within limits, your own master. A responsible person, then, is both bound and free.

1. 'The morality of my station and its duties' (ll. 40–41).

(*a*) State what particular duties the author might have in mind in the case of any one of the examples he gives in ll. 17–20.

(*b*) This phrase implies that there might be another morality. Suggest *other* moral demands which might be made of us.

2. 'a good deal of the morality . . . because it is reasonable' (ll. 40–42).

'taught by such social approval or disapproval' (ll. 54–55).

(*a*) Suggest the sort of thing you might say in support of your approval or disapproval which would show the morality of a person's station and its duties to be reasonable.

(*b*) Why would not either of these methods of teaching behaviour be sufficient in itself?

3. Why does the author describe the story of the young mother and her child (ll. 47–49) as 'pleasant'?

4. Why is 'every man did what was right in his own eyes' a 'description . . . of an anarchical society' (ll. 57–59)?

5. 'A responsible person, then, is both bound and free' (ll. 71–72).

(*a*) Restate in your own words the dual character of responsibility outlined by the author.

(*b*) Give an example from another sphere of life than those the author mentions in which a person is 'both bound and free', and which might illuminate the author's meaning.

6. What qualities would you look for in recommending someone for a responsible position?

7. In what ways do you think schools can help to train their pupils in responsibility?

II

(Socrates is speaking)

If a man were really able to instruct mankind, to receive money for giving instruction would in my opinion be an honour to him. . . . There is at this time a Parian philosopher residing in Athens of whom I have heard; and I came to hear of him in this way: I came across a man who had spent a world of money on the sophists, Callias, the son of Hipponicus, and knowing that he had two sons, I asked him:

'Callias,' I said, 'if your two sons were foals or calves, there would be no difficulty in finding someone to put over them; we should hire a trainer of horses or a farmer probably, who would improve and perfect them in their own proper "virtue"[1] and excellence; but as they are human beings, whom are you thinking of placing over them? Is there anyone who understands human and political "virtue"? You must have thought about the matter, for you have sons; is there any one?'

'There is,' he said.

'Who is he?' I said; 'and of what country? and what does he charge?'

'Evenus the Parian,' he replied; 'he is the man, and his charge is five minae.'

Happy is Evenus, I said to myself, if he really has this wisdom, and teaches at such a moderate charge.

On the basis of this passage write an essay on the aims and needs of education, discussing Socrates' ideas and making sure you include some consideration of:

1. The purpose of education.

[1] The word translated 'virtue'—which the sophists professed to teach—is one of the fundamental . . . conceptions in Greek thought. The Greeks held that everything and everyone was capable of a perfection belonging to its nature, which they called its *areté*, its 'virtue' or excellence; and that the object of life was to discover and achieve this 'virtue'.

2. The relevance of Socrates' analogy of the foals and calves.

3. The concept of human, or man's proper 'virtue' or excellence.

4. The chief quality, or qualities, required in the teacher.

5. The responsibility of the teacher.

III

No government by a democracy or a numerous aristocracy, either in its political acts or in the opinions, qualities, and tone of mind which it fosters, ever did or could rise above mediocrity, except in so far as the sovereign Many have let themselves be guided (which in their best times they always have done) by the counsels and influence of a more highly gifted and instructed One or Few. The initiation of all wise or noble things comes and must come from individuals; generally at first from some one individual. The honour and glory of the average man is that he is capable of following that initiative; that he can respond internally to wise and noble things, and be led to them with his eyes open. I am not countenancing the sort of 'hero-worship' which applauds the strong man of genius for forcibly seizing on the government of the world and making it do his bidding in spite of himself. All he can claim is, freedom to point out the way. The power of compelling others into it is not only inconsistent with the freedom and development of all the rest, but corrupting to the strong man himself. It does seem, however, that when the opinions of masses of merely average men are everywhere become or becoming the dominant power, the counterpoise and corrective to that tendency would be the more and more pronounced individuality of those who stand on the higher eminences of thought. It is in these circumstances most

especially, that exceptional individuals, instead of being deterred, should be encouraged in acting differently from the mass. In other times there was no advantage in their doing so, unless they acted not only differently but better. In this age, the mere example of non-conformity, the mere refusal to bend the knee to custom, is itself a service. Precisely because the tyranny of opinion is such as to make eccentricity a reproach, it is desirable, in order to break through that tyranny, that people should be eccentric. Eccentricity has always abounded when and where strength of character has abounded; and the amount of eccentricity in a society has generally been proportional to the amount of genius, mental vigour, and moral courage it contained. That so few now dare to be eccentric marks the chief danger of the time.

1. Give in not more than 50 of your own words the gist of this passage.

2. Why does the writer say that 'the initiation of all wise or noble things comes and must come from individuals' (ll. 8–9)? Is he right?

3. What does the writer mean by the 'average man' (l. 11)? What assumptions is he making about him?

4. What is the difference, if any, between the kind of leadership of the few the writer commends, and the 'hero-worship' (ll. 14–15) he deplores?

5. What is the tone of this passage and does it seem commendable to you?

6. This passage was written a century ago. Is the appeal for non-conformity more or less necessary today? Why?

IV

WHEN in the course of human events it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the Powers of the earth the separate and equal station to which the Laws of Nature and of Nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain inalienable rights, that among these are Life, Liberty, and the pursuit of Happiness. That to secure these rights, governments are instituted among men, deriving their powers from the consent of the governed. That whenever any form of government becomes destructive of these ends, it is the right of the people to alter or abolish it, and to institute new government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their safety and happiness. Prudence indeed will dictate that governments long established should not be changed for light and transient causes; and accordingly all experience hath shown that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses and usurpations, pursuing invariably the same object, evinces a design to reduce them under absolute despotism, it is their right, it is their duty, to throw off such government, and to provide new guards for their future security.

1. What impels the writers to explain the reasons for the Declaration of Independence?

2. What, according to the writers, are the purposes for which governments are instituted?

3. Why should forms of government not be changed for light and transient causes?

4. What do you gather were:

(*a*) the causes which led to the Declaration of Independence?

(*b*) the grounds upon which the Declaration was based?

5. *α*. What do you take the writers to mean by:

(*a*) 'the Laws of Nature and Nature's God'?

(*b*) the claim 'that all men are created equal'?

(*c*) 'Liberty'?

β. Choose *one* of these ideas and comment on it.

6. From what do the writers claim governments derive their authority?

7. EITHER Discuss some of the difficulties attending a satisfactory definition of 'democracy'.

OR In what ways may the pursuit of liberty and security create a dilemma for governments today?

V

HEREBY it is manifest that, during the time men live without a common power to keep them all in awe, they are in that condition which is called war; and such a war, as is of every man against every man. For war consisteth not in battle only, or the act of fighting; but in a tract of time, wherein the will to contend by battle is sufficiently known; and therefore the notion of time is to be considered in the nature of war; as it is in the nature of weather. For as the nature of foul weather lieth not in a shower or two of rain, but in an inclination thereto of many days together; so the nature of war consisteth not in actual fighting, but in the known disposition thereto, during all the time there is no assurance to the contrary. All other time is peace. . . .

To this war of every man against every man, this also is consequent, that nothing can be unjust. The notions of right and wrong, justice and injustice have there no place. Where there is no common power, there is no law; where no law, no injustice. Force, and fraud, are in war the two cardinal virtues. Justice and injustice are none of the faculties neither of the body, nor mind. If they were, they might be in a man that were alone in the world, as well as his senses and passions. They are qualities that relate to men in society, not in solitude. It is consequent also to the same condition, that there be no propriety, no dominion, no *mine* and *thine* distinct; but only that to be every man's that he can get; and for so long as he can keep it. And thus much for the ill condition which man by mere nature is actually placed in; though with a possibility to come out of it, consisting partly in the passions, partly in his reason.

The passions that incline men to peace are fear of death, desire of such things as are necessary to commodious living, and a hope by their industry to obtain them. And reason suggesteth convenient articles of peace, upon which men may be drawn to agreement. These articles are they which otherwise are called the Laws of Nature; whereof I shall speak more particularly in the two following chapters.

1. Describe briefly in your own words what the writer means by 'war'. Comment on this idea.

2. Explain what the writer means by:

(*a*) 'during the time men live without a common power to keep them all in awe' (ll. 1–2).

*(*b*) 'Justice and injustice are none of the faculties neither of the body, nor mind' (ll. 20–21).

(*c*) 'the ill condition which man by mere nature is actually placed in' (ll. 29–30).

*(*d*) 'articles of peace' (ll. 35–36).

3. What enables man to come out of the state of war?

*4. Why, if we accept the writer's view, is 'Laws of Nature' a particularly inappropriate name for 'articles of peace'?

5. (*a*) *Why does the writer say that nothing can be just or unjust in the state of war?

(*b*) Say whether, and why, you agree or disagree with this point of view.

(*c*) Show how one might reasonably make a distinction between this analysis of justice and injustice and its application to right and wrong.

6. In what ways might this passage be applied to the present international situation?

VI

I SHOULD say outright that I have little faith in laws. If too severe, they are broken, and with good reason. If too complicated, human ingenuity finds means to slip easily between the meshes of this trailing but fragile net. Respect for ancient laws answers to what is deepest rooted in human piety, but it serves also to pillow the inertia of judges. The oldest codes are a part of that very savagery which they were striving to correct; even the most venerable among them are a product of force. Most of our punitive laws fail, perhaps happily, to reach the greater part of the culprits; our civil laws will never be supple enough to fit the immense and changing diversity of facts. Laws change more slowly than custom, and though dangerous when they fall behind the times are more dangerous still when they presume to anticipate custom. And nevertheless from that mass of outworn routines and perilous innovations a few useful formulas have emerged here and there, just as they have in medicine. The Greek philosophers have taught us to know something more

of the nature of man; our best jurists have worked for generations along lines of common sense. I have myself effected a few of those partial reforms which are the only reforms that endure. Any law too often subject to infraction is bad; it is the duty of the legislator to repeal or to change it, lest the contempt into which that rash ruling has fallen should extend to other, more just legislation. I propose as my aim a prudent avoidance of superfluous decrees, and the firm promulgation, instead, of a small group of well-weighed decisions.

1. (*a*) State briefly in your own words the writer's view of the proper function of laws.

(*b*) State two objections made by the writer against the attempt to formulate too complex a system of laws.

(*c*) Why does the writer consider that partial reforms are 'the only reforms that endure' (ll. 23–24)?

(*d*) What do you gather is the writer's view of the relation between laws and custom?

(*e*) What assumptions does the writer make about human nature?

2. If you were the writer, how would you explain and justify the following phrases?

(*a*) 'to pillow the inertia of judges' (ll. 6–7).

(*b*) 'The oldest codes are a part of that very savagery which they were striving to correct' (ll. 7–9).

(*c*) 'Most of our punitive laws fail, perhaps *happily*, to reach the greater part of the culprits' (ll. 10–11).

(*d*) 'Laws . . . are more dangerous still when they presume to anticipate custom' (ll. 13–16).

3. Is the writer's analogy from medicine (l. 19) relevant to his argument? If you think it is, show its relevance by concrete illustration; if you think it is not, explain why.

4. What do you consider the relation between legislation and public opinion should be? Illustrate by at least one example.

5. (*a*) What distinctions would you draw between a moral code and a legal code?

(*b*) Do you consider that everything which is morally wrong should be made illegal, or not? Give reasons for your answer.

VII

'SIMONIDES, then,' asked Socrates, 'says that Justice is benefiting one's friends and harming one's enemies?'

'Yes; and I agree with him,' answered Polemarchus.

'Well, who is in the best position to benefit his friends and harm his enemies when they are ill?'

'A doctor.'

'And who when they are in danger by sea?'

'A navigator.'

'Well, what about the just man? In what activity and for what purpose is he in the best position to give assistance or do harm?'

'In fighting for his friends and against his enemies, I suppose.'

'Exactly; yet I presume a doctor is no use to people when they aren't ill?'

'That's true.'

'Nor a navigator when they haven't put to sea?'

'No.'

'Does it follow then that the just man is of no use either when people aren't at war?'

'No, I don't think it does.'

'Oh! Justice is useful in peace-time too?'

'It is.'

'So is farming isn't it?'

'Yes.'

'For producing food?'

'Yes.'

'You would also say shoemaking was useful, I imagine—at least for producing shoes?'

'Yes, I should.'

'Very well; what would you say justice produced that served a useful purpose in peace-time?'

'It has a use when people do business together.'

'By this do you mean partnerships or something else?'

'No, partnerships.'

'Now, in playing chess is the just man a good and useful partner or the chess-player?'

'A chess-player.'

'And in bricklaying and masonry is the just man of more use and a better partner than the builder?'

'Certainly not.'

'Then in what partnership does the just man prove a better partner in the way that the musician is better than the just man for making music?'

'In financial dealings, I think.'

'Except, presumably, Polemarchus, when you have to use money to help buy or sell a horse, for example; in that case a farrier would be better, I imagine. Do you agree?'

'Y–e–e–s.'

'Or to buy a boat, a shipwright or a navigator would be better?'

'It would seem so.'

'For what financial transactions, then, is the just man more useful than others?'

'For putting our money into safe keeping, Socrates.'

'Do you mean occasions when we've no need to use our money, but bank it?'

'Exactly.'

'When our money is useless, then, that's when justice is useful?'

'It looks a bit like it.'

'And I suppose when a sickle, for example, has to be stored, justice is useful to the community and to the

individual; but when it has to be used, then the skill of the vine-dresser comes in?'

'It seems so.'

'Will you agree that the same argument holds for a shield and a lyre?'

'It must do.'

'Therefore in all other affairs too, justice is no use when you're using things, but useful when you aren't.'

'Possibly.'

'Justice wouldn't seem to be a particularly important thing, would it, my friend, if it's only useful for what's not in use?'

*1. State, in not more than one sentence each, (*a*) the thesis supported by Polemarchus; and (*b*) the conclusion reached by Socrates.

*2. Show in a series of numbered propositions the stages of Socrates' line of argument, indicating by appropriate words the link between each stage.

*3. (*a*) On what assumption about the nature of justice is the whole argument based?

(*b*) Do you agree with this assumption or not, and for what reasons?

*4. What assumption does Polemarchus' assertion that justice is useful in war rest on? Is this a sound one?

*5. What relevance do you think this passage has to contemporary political and social problems?

VIII

IT has already been remarked that questions of ultimate ends do not admit of proof, in the ordinary acceptation of the term. To be incapable of proof by reasoning is common to all first principles; to the first premises of our knowledge, as well as to those of our conduct. But the former, being matters of fact, may be the subject of a direct appeal to the faculties which judge of fact—namely our senses, and our internal consciousness. Can an appeal be made to the same faculties on questions of practical ends? Or by what other faculty is cognizance taken of them?

Questions about ends are, in other words, questions what things are desirable. The utilitarian doctrine is that happiness is desirable, and the only thing desirable, as an end; all other things being only desirable as a means to that end. What ought to be required of this doctrine—what conditions is it requisite that the doctrine should fulfil—to make good its claim to be believed?

The only proof capable of being given that an object is visible, is that people actually see it. The only proof that a sound is audible, is that people hear it; and so of the other sources of experience. In like manner, I apprehend, the sole evidence it is possible to produce that anything is desirable, is that people do actually desire it. If the end which the utilitarian doctrine proposes to itself were not, in theory, and in practice, acknowledged to be an end, nothing could ever convince people that it was so. No reason can be given why the general happiness is desirable, except that each person, so far as he believes it to be attainable, desires his own happiness. This, however, being a fact, we have not only all the proof which the case admits of, but all which it is possible to require, that happiness is a good; that each

person's happiness is a good to that person, and the general happiness, therefore, a good to the aggregate of all persons. Happiness has made out its title as *one* of the ends of conduct, and consequently one of the criteria of morality.

1. Write out, in a series of short, numbered propositions, the sequence of the argument in this passage.

2. (*a*) What answers does the writer give to the questions: 'Can an appeal be made to the same faculties [our senses and internal consciousness] on questions of practical ends? Or by what other faculty is cognizance taken of them?' (ll. 9–11)?

(*b*) Examine the soundness of the statement that something is desirable because 'people do actually desire it' (ll. 25–26).

(*c*) Justify or refute the author's assumption that because 'each person's happiness is a good to that person, . . . the general happiness [is], therefore, a good to the aggregate of all persons' (ll. 34–37).

3. (*a*) State in your own words what is meant by an argument by analogy, and give an example of one.

(*b*) How far are the analogies drawn from sight and hearing relevant to the argument that happiness is desirable?

4. 'All other things being only desirable as a means to that end' (ll. 15–16).

(*a*) Suggest four things which the writer might describe as 'only desirable as a means to that end'.

(*b*) Make out a case, in refutation of the utilitarian doctrine that happiness is 'the only thing desirable, as an end' (ll. 14–15), for something desirable as an end in itself and not as a means.

5. (*a*) Describe in your own words, and illustrate with your own examples, the two kinds of proof referred to in this passage.

(*b*) What are the two kinds of first principle distinguished in the first paragraph? Illustrate them with your own examples.

(*c*) How would you prove to someone that 'questions of ultimate ends do not admit of proof' (ll. 1–2)?

C. PASSAGES ON HISTORY, SCIENCE, AND RELIGION

I

THE nineteenth century made the mistake of worshipping the Muse of History as a goddess. Truth, they believed, was revealed in History, not in the Bible, but like every revelation it required interpretation. Carlyle, for instance, lost his faith in Calvinism and found it in an interpretation of history—remorseless destiny shapes the nations and her chains can be broken only by the hero. Men began to see truth no longer as absolute, philosophically static, revealed once and for all, but as relative, genetic, and evolutionary. The birth of Christ became not THE event of History, but an event on a globe in which man was a transitory being. It was not science itself but science interpreted as history which upset the orthodox cosmology. Geology told us that the earth existed aeons before man existed, and disproved the literal Genesis story of the Creation and the Flood. Darwin implicitly cast doubt on whether life had ever been created. He made one ask, 'At what precise moment in history has evolving man been given a soul acceptable to God?' What science did was to offer a picture of history, both in the past before man was, and in the future when he should cease to be. You will have noticed how these scientific hypotheses were given a historical twist. Science repaid the compliment by giving History an added air of infallibility. The rules of weighing evidence, employed by scientists, were used by historians. Now if we can sift the evidence for the arrival of Julius Caesar in Britain in 55 B.C. scientifically, can we not apply the same methods in examining the evidence for certain events said to have occurred in

Palestine in A.D. 33? Examined in this manner by German theologians, the Bible was found to be riddled with contradictions and uncertainties. It became a fallible record of human events, not a God-dictated book.

*1. State in not more than 25 words the thesis examined by the writer of this passage.

*2. Omitting the author's illustrations, summarize the main points he makes in analysing the thesis.

3. Does the author himself agree with it? Give reasons for your answer.

4. Explain the relevance of the following quotations to the thesis:

(*a*) 'remorseless destiny shapes the nations and her chains can be broken only by the hero' (ll. 6–8).

(*b*) 'The birth of Christ became not THE event of History, but an event' (ll. 10–11).

*(*c*) 'At what precise moment in history has evolving man been given a soul acceptable to God?' (ll. 18–20).

*(*d*) 'we can sift the evidence for the arrival of Julius Caesar in Britain in 55 B.C. scientifically . . . in Palestine in A.D. 33' (ll. 27–31).

5. 'can we not apply the same methods [scientific] in examining the evidence for certain events said to have occurred in Palestine in A.D. 33?' (ll. 29–31).

Do you think we can or not, and for what reasons?

6. Why should the use of scientific methods give History an added air of infallibility?

7. State briefly at least three objections to the thesis that History is a science, no more and no less.

II

THERE is a case for saying that history is a narrative of past actions arranged in such a way that we see not only what happened but also why. We must now ask what sort, or sorts, of 'why' are involved in history. We can best approach this question by considering the way in which the concept of explanation is used in the natural sciences. It is a philosophical commonplace that scientists no longer attempt to explain the phenomena with which they deal in any ultimate sense: they do not propose to tell us why things are what they are to the extent of revealing the purpose behind nature. They are content with the far more modest task of building up a system of observed uniformities in terms of which they hope to elucidate any situation which falls to be examined. Given any such situation, their procedure is to show that it exemplifies one or more general laws, which can themselves be seen to follow from, or connect with, other laws of a wider character. The main features of this process are, first, that it consists in the resolution of particular events into cases of general laws, and secondly that it involves nothing more than an external view of the phenomena under consideration (since the scientist is not professing to reveal the purpose behind them). It can thus be said to result in an understanding which is properly described as 'abstract'. Now it has been claimed by many writers on philosophy of history that historical understanding is not thus abstract but is, in some sense, concrete. It is clear enough that the question whether there is anything in this contention depends on whether historians explain their facts in the same way as natural scientists explain theirs, or whether they can be shown to possess some peculiar insight into their subject-matter enabling them to grasp its individual nature.

There are some philosophers who have only to pose such a question to answer it in the negative. Explanation, they hold, is and can be of only one type, the type employed in scientific thinking. A process of explanation is essentially a process of deduction, and at the centre of it there is thus always something expressible in general terms. But to conclude on such grounds that there can be no special concept of explanation in history is the reverse of convincing. The right way of tackling the question, one would have supposed, would be to begin by examining the steps historians actually take when they set out to elucidate an historical event or set of events. And when we do that we are immediately struck by the fact that they do not seem to employ generalizations in the same way as scientists do. Ostensibly at least, historians do not attempt to illuminate particular situations by referring to other situations of the same type; their initial procedure at any rate is quite different. Thus when asked to explain a particular event—say, the British general strike in 1926—they will begin by tracing connexions between that event and others with which it stands in inner relationship (in the case in question, certain previous events in the history of industrial relations in Great Britain). The underlying assumption here is that different historical events can be regarded as going together to constitute a single process, a whole of which they are all parts and in which they belong together in a specially intimate way. And the first aim of the historian, when he is asked to explain some event or other, is to see it as part of such a process, to locate it in its context by mentioning other events with which it is bound up.

Now this process of 'colligation', as we may call it . . ., is certainly a peculiarity of historical thinking, and is consequently of great importance when we are studying the nature of historical explanation. But we should

not try to make too much of it. Some writers on the subject seem to leap from the proposition that we can establish inner connexions between certain historical events to the far more general assertion that history is wholly intelligible, and argue in consequence that it is therefore superior to the natural sciences. This is clearly a mistake. The truth would seem to be that, though historical thinking does thus possess certain peculiarities of its own, it is not *toto caelo* different from scientific thinking. In particular, it is hard to deny that the historian, like the scientist, does make appeal to general propositions in the course of his study, though he does not make these explicit in the same way as the scientist does. History differs from the natural sciences in that it is not the aim of the historian to formulate a system of general laws; but this does not mean that no such laws are presupposed in historical thinking. In fact, as I hope to show in detail later, the historian does make constant use of generalizations, in particular generalizations about the different ways in which human beings react to different kinds of situations. History thus presupposes general propositions about human nature, and no account of historical thinking would be complete without proper appreciation of that fact.

1. Explain in your own words what the writer means by:
(*a*) 'colligation' (l. 67).
(*b*) 'abstract' (l. 25): 'concrete' (l. 28).
(*c*) 'external view of the phenomena under consideration' (ll. 21–22): 'history is wholly intelligible' (ll. 74–75).

2. In what ways does the writer think historical and scientific 'explanation': (*a*) differ; (*b*) are alike?

3. Suggest two examples of 'general propositions about human nature' which the writer suggests are presupposed by historians.

4. Choose a real or imaginary historical event and 'explain' it in the way described by the writer (200 words approx.).

III

(*a*) One intellectual excitement has been denied me. Men wiser and more learned than I have discovered in history a plot, a rhythm, a predetermined pattern. These harmonies are concealed from me. I can see only one emergency following upon another, as wave follows wave, only one great fact with respect to which, since it is unique, there can be no generalizations, only one safe rule for the historian: that he should recognize . . . the play of the contingent and the unforeseen. . . . This is not a doctrine of cynicism and despair. The fact of progress is written plain and large on the page of history; but progress is not a law of nature. The ground gained by one generation may be lost by the next.

(*b*) I said before that interpretations [of history] may be incompatible; but as long as we consider them merely as crystallizations of points of view, then they are not. For example, the interpretation that man steadily progresses (towards the open society or some other aim) is incompatible with the interpretation that he steadily slips back or retrogresses. But the 'point of view' of one who looks on human history as a history of progress is not necessarily incompatible with that of one who looks on it as a history of retrogression; that is to say, we could write a history of human progress towards freedom (containing, for example, the story of the fight against slavery) and another history of human retrogression and oppression (containing perhaps such things as the impact of the white race upon the coloured races); and these two histories need not be in conflict; rather, they may be complementary to each other, as would be two views of the same landscape seen from two different points. This

consideration is of considerable importance. For since each generation has its own troubles and problems, and therefore its own interests and its own point of view, it follows that each generation has a right to look upon and reinterpret history in its own way, which is complementary to that of previous generations. After all, we study history because we are interested in it, and perhaps because we wish to learn something about our own problems. But history can serve neither of these two purposes if, under the influence of an inapplicable idea of objectivity, we hesitate to present historical problems from our point of view. And we should not think that our point of view, if consciously and critically applied to the problem, will be inferior to that of a writer who naïvely believes that he does not interpret, and that he has reached a level of objectivity permitting him to present 'the events of the past as they actually did happen'. . . . The main thing is to be conscious of one's point of view, and critical, that is to say, to avoid, as far as this is possible, unconscious and therefore uncritical bias in the presentation of the facts. In every other respect, the interpretation must speak for itself; and its merits will be its fertility, its ability to elucidate the facts of history, as well as its topical interest, its ability to elucidate the problems of the day.

To sum up, there can be no history of 'the past as it actually did happen'; there can only be historical interpretations . . .; and every generation has a right to frame its own. . . . We want to know how our troubles are related to the past, and we want to see the line along which we may progress towards the solution of what we feel, and what we choose, to be our main tasks. It is this need which, if not answered by rational and fair means, produces historicist interpretations. Under its pressure the historicist substitutes

for a rational question: 'What are we to choose as our most urgent problems, how did they arise, and along what roads may we proceed to solve them?' the irrational and apparently factual question: 'Which way are we going? What, in essence, is the part that history has destined us to play?'

But am I justified in refusing to the historicist the right to interpret history in his own way? Have I not just proclaimed that anybody has such a right? My answer to this question is that historicist interpretations are of a peculiar kind. Those interpretations which are needed and justified, and one or other of which we are bound to adopt, can, I have said, be compared to a searchlight. We let it play upon our past, and we hope to illuminate the present by its reflection. As opposed to this, the historicist interpretation may be compared to a searchlight which we direct upon ourselves. It makes it difficult if not impossible to see anything of our surroundings, and it paralyses our actions. To translate this metaphor, the historicist does not recognize that it is we who select and order the facts of history, but he believes that 'history itself', or 'the history of mankind', determines, by its inherent laws, ourselves, our problems, our future, and even our point of view. Instead of recognizing that historical interpretation should answer a need arising out of the practical problems and decisions which face us, the historicist believes that in our desire for historical interpretation, there expresses itself the profound intuition that by contemplating history we may discover the secret, the essence of human destiny. Historicism is out to find The Path on which mankind is destined to walk; it is out to discover The Clue to History . . ., or The Meaning of History.

But is there such a clue? *Is there a meaning in History?*

1. Do you consider these two passages represent the same point of view about history or not? State in not more than 30 of your own words what the point of view of both (or each) is.

2. Illustrate with your own examples what you understand the writers to mean by:

(*a*) The 'harmonies' [of history] (l. 4).

(*b*) 'the play of the contingent and the unforeseen' (ll. 9–10).

(*c*) 'two histories . . . may be complementary to each other' (ll. 30–32).

(*d*) 'the essence of human destiny' (ll. 100–1).

3. What distinction does the writer of (*b*) draw between historicist interpretations of history and others?

4. Why does the writer of (*b*) consider 'there can be no history of "the past as it actually did happen"' (ll. 60–61)?

5. In not more than 300 words give your view on:

EITHER 'After all, we study history . . . because we wish to learn something about our own problems' (ll. 40–42).

OR 'Is there a meaning in history?' (l. 105).

IV

How odd it is that anyone should not see that all observation must be for or against some view, if it is to be of any service. CHARLES DARWIN

IN the second book of his fascinating *History*, Herodotus recounts the sights that met him on his travels to Egypt. The river Nile aroused his attention:

Now the Nile, when it overflows, floods not only the Delta, but also the tracts of country on both sides the stream, . . . in some places reaching to the extent of two days' journey from its banks, in some even exceeding that distance, but in others falling short of it. Concerning the nature of the river, I was not able to gain any information either from the priests or from others. I was particularly

anxious to learn from them why the Nile, at the commencement of the summer solstice, begins to rise, and continues to increase for a hundred days—and why, as soon as that number is past, it forthwith retires and contracts its stream, continuing low during the whole of the winter until the summer solstice comes around again. . . . Some of the Greeks have offered explanations of the phenomena of the river for which they have accounted in three different ways:

One pretends that the Etesian winds (the North-West winds blowing from the Mediterranean) cause the rise of the river by preventing the Nile-water from running off into the sea. But in the first place it has often happened, when the Etesian winds did not blow, that the Nile has risen according to its usual wont; and further, if the Etesian winds produced the effect, the other rivers which flow in a direction opposite to those winds ought to present the same phenomena as the Nile, and the more so as they are all smaller streams and have a weaker current. But these rivers, of which there are many both in Syria and in Libya, are entirely unlike the Nile in this respect.

The second opinion is even more unscientific. . . .

The third explanation, which is very much more plausible than either of the others, is positively the farthest from the truth; there is nothing in what it says any more than in the other theories. It is, that the inundation of the Nile is caused by the melting of snows. Now, as the Nile flows out of Libya (Central Africa) through Ethiopia, into Egypt, how is it possible that it can be formed of melted snow, running, as it does, from the hottest regions of the world into cooler countries? Many are the proofs whereby anyone capable of reasoning on the subject may be

convinced that it is most unlikely that this should be the case. The first and strongest argument is furnished by the winds, which always blow hot from these regions. The second is, that rain and frost are unknown there. Now, whenever snow falls, it must of necessity rain within five days; so that, if there were snow, there must be rain also in those parts. Thirdly, it is certain that the natives of the country are black with the heat, that the kites and the swallows remain there the whole year, and that the cranes, when they fly from the rigours of a Scythian winter, flock thither to pass the cold season. If then, in the country whence the Nile has its source, or in that through which it flows, there fell ever so little snow, it is absolutely impossible that any of these circumstances could take place.

This excerpt from Herodotus illustrates clearly the Greek zest for scientific knowledge and speculation. But it also illustrates the great difference between the habit of simple acceptance of apparently stray, disconnected information, and the attitude that searches for some order in facts which are only superficially isolated. The observable inundation of the Nile was to many a brute fact, unconnected with other familar but isolated facts. For Herodotus, however, the behaviour of the Nile was not simply a brute fact. It presented a *problem* that could be resolved by finding some *connexion* between the periodic inundations of the Nile and *other* facts. . . . In virtue of that connexion, apparently isolated facts would be seen to be *ordered* facts. And in general, scientific investigations must begin with some problem and aim at an order connecting what at first sight may seem unrelated facts. But the ability to perceive in some brute experience the occasion for a problem, and especially a problem

whose solution has a bearing on the solution of other problems, is not a common talent among men. For no rule can be given by means of which men can learn to ask significant questions. It is a mark of scientific genius to be sensitive to difficulties where less gifted people pass by untroubled with doubt. . . .

We cannot take a single step forward in any inquiry unless we begin with a *suggested* explanation or solution of the difficulty which originated it. Such tentative explanations are suggested to us by something in the subject matter and by our previous knowledge. When they are formulated as propositions, they are called *hypotheses*. . . . Herodotus examined three hypotheses (beside his own) for solving the problem of the Nile's periodic inundation. He accepted his own after rejecting the other three. As a matter of fact, all four explanations are false. Nevertheless, the procedure he followed in rejecting some hypotheses and accepting others is still a model of scientific method. . . .

A hypothesis must of necessity regard some facts as *significant* and others as not. It would have been humanly impossible for Herodotus to examine the relations of the Nile to *every other* class of events. Such a task, however, would have been regarded by him as preposterous. For most of these other facts, such as . . . the number of travellers visiting Naucratis each season, were judged by him to be *irrelevant*. What is meant by saying that some hypotheses express 'relevant' connexion of facts and others do not? The melting of snows is a relevant fact for understanding the Nile's behaviour, Herodotus might have explained, because *on the basis of previous knowledge* melting snow can be regarded as related more or less constantly and in some determinate manner with the volume of rivers. But the number of visitors in Naucratis each season is not relevant to the Nile's

behaviour, because no such relation is known to exist between changes in the visiting population of a city and variations in the volume of rivers. A hypothesis is believed to be relevant to a problem if it expresses determinate modes of connexions between a set of facts, including the fact investigated; it is irrelevant otherwise. . . .

[We now turn to the conditions which a hypothesis must meet.]

1. In the first place a hypothesis must be formulated in such a manner that deductions can be made from it, and that consequently a decision can be reached as to whether it does or does not explain the facts considered. This condition may be discussed from two points of view:

(*a*) It is often the case—indeed the most valuable hypotheses of science are of this nature—that a hypothesis cannot be directly verified. We cannot establish directly by any simple observation that two bodies attract each other inversely as the square of their distances. The hypothesis must therefore be stated so that by means of the well-established techniques of logic and mathematics its implications can be clearly traced and then subjected to experimental confirmation. . . .

(*b*) Unless each of the constituent terms of a hypothesis denotes a determinate experimental procedure, it is impossible to put the hypothesis to an experimental test. The hypothesis that the universe is shrinking in such a fashion that all lengths contract in the same ratio is empirically meaningless if it can have no consequences which are verifiable. . . .

2. A second, very obvious, condition which a hypothesis must satisfy is that it should provide the answer to the problem which generated the inquiry. Thus the theory that freely falling bodies fall with constant

accelerations accounts for the known behaviour of bodies near the surface of the earth. Nevertheless, it would be a gross error to suppose that false hypotheses —that is those whose logical consequences are not all in agreement with observation—are always useless. . . . An obvious illustration is the following: The ancient Babylonians entertained many false notions about the magical properties of the number seven. Nevertheless, because of their belief that the heavenly bodies visible to the naked eye which move among the fixed stars had to be seven in number, they were led to look for, and find, the rarely seen planet Mercury. 'Wrong hypotheses rightly worked', the English logician De Morgan remarked, 'have produced more useful results than unguided observation.'

3. A very important further condition must be imposed upon hypotheses. . . . Galileo's theory of acceleration enabled him not only to account for what he already knew when he formulated it, but also to *predict* that observation would reveal certain propositions to be true whose truth was not known or even suspected at the time the prediction was made. He was able to show, for example, that if the acceleration of a freely falling body was constant, then the path of projectiles fired from a gun inclined to the horizon would have to be a parabola. A hypothesis becomes *verified*, but of course *not proved* beyond every doubt, through the successful predictions it makes.

1. Using your own words, restate in a series of numbered arguments Herodotus' reasons for rejecting the two explanations for the inundation of the Nile which are here quoted.

2. Explain what the writer means by:

(*a*) '"relevant" connexion' (l. 111).

(*b*) 'determinate experimental procedure' (l. 145).

(*c*) 'empirically meaningless' (l. 149).

3. (*a*) What, according to the writer, is the aim of scientific investigation?

(*b*) Why does it require uncommon talent to undertake this kind of scientific investigation?

(*c*) Suggest one example of a piece of scientific investigation which would answer the description here given, and show how it does so.

4. Describe in outline the procedure the writer refers to as 'scientific method'.

5. (*a*) Why have 'wrong hypotheses rightly worked . . . produced more useful results than unguided observation' (ll. 166–9)?

(*b*) Why does not a hypothesis become proved beyond doubt through the successful predictions it makes?

6. (*a*) State briefly in your own words the conditions which a scientific hypothesis must fulfil if it is to be useful.

(*b*) Illustrate these conditions by applying them to the third explanation of the Nile's behaviour quoted by Herodotus.

V

(*a*)

The Microbe is so very small
You cannot make him out at all;
But many sanguine people hope
To see him through a microscope.
His jointed tongue that lies beneath
A hundred curious rows of teeth;
His seven tufted tails with lots
Of lovely pink and purple spots,
On each of which a pattern stands,
Composed of forty separate bands;
His eyebrows of a tender green;
All these have never yet been seen—
But scientists who ought to know
Assure us that they must be so . . .
Oh! let us never, never doubt
What nobody is sure about!

(*b*) *White*: If we have never found a *B* associated with an *A*, not even with the most striking *A*'s, then how can the presence of an *A* here and now . . . support by analogy the presence of a *B*?

Gray: Like this: many diseases whose causal story, progress and disappearance follow a certain pattern have been found to be associated with germs in the blood-stream in the sense that when a sample of the patient's blood has been taken and carefully examined under the microscope small creatures have been seen swimming about in it. By 'a certain pattern of causal story' I mean this sort of thing: These diseases are catching but less catching if the people who have them are careful, and still less catching if the people who haven't them are careful too and wear muslin masks and gargle every night and so on. And by 'a certain pattern of progress and disappearance' I mean that the temperature of sufferers from these diseases rises and their other symptoms increase until a climax and then—and so on. Of course, the period of incubation and infection varies, but there is a likeness in the way these diseases come and the way they go, and what makes them worse and what makes them better. Colds and influenza and measles are diseases whose causal story, progress and disappearance is of this pattern. And surely it is on this account that it is reasonable to suppose that colds and influenza are due to germs. And this, notice, is reasonable, although the most careful microscopic examination of persons suffering from these diseases fails to reveal any associated germs. And surely it would remain reasonable, even though *everyone* should give up *all* hope of ever making a microscope which would reveal them. And isn't this so because in analogous cases we have found germs?

White: . . . It is true that analogy may put into our heads the idea that measles is due to a germ, that there is something the presence of which is responsible for the multitude of symptoms, and, further, this idea at first has a certain

plausibility, probability, because of the analogy of the symptoms with other groups of symptoms which have been found to be due to something in the blood. But the idea which is probable is the idea that there is a *visible* thing; *that* is what analogy suggests. When we have looked and found there isn't any such thing, then that idea can no longer be said to be probable, but is on the contrary known to be false, the analogy is known to have broken down.

Gray: Yes, *that* idea is no longer probable. What is then probable is that there is an invisible germ. Surely you are not going to say that measles is not due to an invisible germ, or that this conviction of yours is unjustified, or that the ground for it is not the analogy between the symptoms of measles and the symptoms of diseases which have been found to be due to germs? The existence of the invisible . . . germs is probable by argument by analogy. . . . We cannot know directly of the presence of the invisible germs, but we know of it indirectly by an argument by analogy with cases where our senses do not fail us so soon.

White: No doubt measles is due to an invisible germ. And no doubt what justifies us in saying this is the likeness of the symptoms of measles to the symptoms of diseases which have been found to be due to visible germs. No doubt that is the conventional way of describing the justification. What I want to insist upon is that 'Analogy justifies belief in invisible germs' is only another way of saying 'Until we looked it was probable by analogy that there were germs (visible) in the blood of patients suffering from measles but when we looked we found none.' . . .

By all means let us say, then, that analogy with cases of visible germs establishes the existence in other cases of invisible germs. . . . Call it good evidence if you like, call it argument by analogy proving the existence of things it is beyond our senses to detect, but notice that it is uncommonly like those cases where we say 'But it was found

that here the analogy breaks down'. 'Amongst the larger termites we find societies in which there are workers, nurses and soldiers who guard the queen. Analogy would suggest a king. But observation shows that this is not so.' Or shall we say that the drone is a king but that when he comes to the throne he is deposed at once?

But take no notice of my gibes. You are doing the done thing. The way in which phenomena at one end of an electrically-charged wire are connected with phenomena at the other end reminds us of the way phenomena at one end of a pipe carrying water are connected with the phenomena at the other end—an electrical system reminds us in many ways of an hydraulic system. And this resemblance provides evidence by analogy for there being a current of something running through the wires of the electrical system; it is analogy between what we now experience from the wires and what we have experienced from pipes which makes us think there must be a current of something in the wires. Experience then supports this idea. But doesn't it also refute it, when we look and find no current of anything in the wires?

1. State in your own words the difference between the views of White and Gray presented in this conversation.

2. In what ways do you think the views of the author of (*a*) coincide with or differ from the views of EITHER White OR Gray?

3. In passage (*b*) are you in agreement with White or with Gray or with neither, and for what reasons? Illustrate your answer with at least one new example.

4. What implications do you think these passages have for the work of the scientist?

VI

LET us suppose that an ichthyologist is exploring the life of the ocean. He casts a net into the water and brings up a fishy assortment. Surveying his catch he proceeds in the usual manner of a scientist to systematize what it reveals. He arrives at two generalizations:

1. No sea-creature is less than 2 inches long.
2. All sea-creatures have gills.

These are both true of his catch, and he assumes tentatively that they will remain true however often he repeats it.

In applying this analogy, the catch stands for the body of knowledge which constitutes physical science, and the net for the sensory and intellectual equipment which we use in obtaining it. The casting of the net corresponds to observation: for knowledge which has not been or could not be obtained by observation is not admitted into physical science.

An onlooker may object that the first generalization is wrong. 'There are plenty of sea-creatures under 2 inches long, only your net is not adapted to catch them.' The ichthyologist dismisses the objection contemptuously. 'Anything uncatchable by my net is *ipso facto* outside the scope of ichthyological knowledge, and is not part of the kingdom of fishes which has been defined as the theme of ichthyological knowledge. In short, what my net can't catch isn't fish.' Or—to translate the analogy—'If you are not simply guessing, you are claiming a knowledge of the physical universe discovered in some other way than by the methods of physical science and admittedly unverifiable by such methods. You are a metaphysician. Bah!'

The dispute arises, as many disputes do, because the protagonists are talking about different things. The onlooker has in mind an objective kingdom of fishes. The

ichthyologist is not concerned as to whether the fishes he is talking about form a subjective or objective class; the property that matters is that they are catchable. . . .

When the ichthyologist rejected the onlooker's suggestion of an objective kingdom of fishes as too metaphysical, and explained that his purpose was to discover laws (i.e. generalizations) which were true for catchable fish, I expect the onlooker went away muttering: 'I bet he does not get very far with his ichthyology of catchable fish. I wonder what his theory of the reproduction of catchable fish will be like. It's all very well to dismiss baby fishes as metaphysical speculation; but they seem to me to come into the problem.'

1. What is the writer's purpose in telling the parable of the ichthyologist?

2. (*a*) How would you interpret the onlooker's last two sentences ('I wonder what . . . come into the problem') in terms of a criticism of science?

(*b*) Do you regard it as a valid criticism?

(*c*) What reply might the scientist make to it?

3. What do you understand the scientist to mean by calling the onlooker a 'metaphysician'?

4. Some people claim that there is no knowledge other than that acquired by scientific methods. Make out a case for or against this claim.

VII

I SHALL now explain the difference between problems and mysteries. . . .

A problem arises in so far as we approach the world with a fixed measuring instrument, whether of the literal and physical, or of the conceptual sort. Let us begin with the physical instrument. If I approach my

physical environment with an actual yardstick, problems arise about what the measure in yards of each thing is, and how the yard-measurement of one thing stands mathematically related to that of another. I know exactly what the problems are, and how in principle they are to be solved, even though I cannot solve some of them here and now; for example, I cannot measure a given line because it is an irregular curve, and my yardstick is fixed and straight, or I cannot measure the height of a tree, because I cannot climb to the top of it. Such difficulties as these give rise to a new sort of problem—the problem of perfecting the instrument of measurement. The problem of measuring the irregular curve may be solved by the brilliant invention of a tape-measure, and the problem of measuring the tree by an instrument recording an angle, taken from the ground by eye at a given distance from the tree. Here, then, are two sorts of problems: problems about elements in environment arising from, and solved by, the use of the instrument; and problems about the instrument, which arise from its inadequacy to an observed need, and are solved by its development or variation. To the first sort of problem there is always *the right answer*: the measurement of a given plank in yards is just what it is. To the second sort of problem there is *a* right answer—several different instruments might do the job, but anyhow, here is one which will do it.

The same two sorts of problems arise if I approach the world not with a tangible, but with a conceptual instrument, for example, a determinate idea of physical cause. This gives rise to any number of problems in environment, for it leads one to ask what is the cause of each particular physical event. Again, it leads to problems about the instrument: in the attempt to fix particular causes we are driven to formulate

general causal rules, and so the instrument is elaborated. Not only may it be elaborated, it may be revolutionized: in using her causal concept, science comes to see that a fundamentally different concept will be more fertile in its application; and so cause itself comes to mean something different from what it did.

The field of the problematic is the field in which there are right answers: and it is the field of what is commonly called 'science'. . . .

The true scientist is justly credited with a supreme respect for fact, that is to say, for the real world upon which he makes his experiments. He will stubbornly refuse to record what his yardstick does not bring to light, or to construct in defiance of any least thing that it does. This is rightly called respect for fact: but it can scarcely be called respect for being. . . .

If we have to suppose a state of exclusive preoccupation with the yardstick business itself to the exclusion of all sense for real being, we must view such a state with the gravest disquiet. . . . For religion is based on respect for being—for God, yes, but only because God is seen to be uniquely worthy of it by a mind open to respect for being in general. Now if our experiencing of things and persons is limited to the trying on them of pre-arranged tests devised by ourselves, full respect for their being is excluded from the first. If we respect any being, we allow it to make its own impression upon us . . .; a man who feels any respect for any being cannot choose what he will explore and what ignore in the object of respect, but must give to his thoughts the most self-denying adaptability, ready to apply or improvise whatever thought-forms the nature of the object may require, if the aspects it insists on presenting are to be appreciated. He cannot even be content to appreciate every given aspect; he will endeavour to integrate the aspects in the unity of their being, for it

is being, not the abstracted aspects of being, which is properly to be revered.

Where the attitude of almost passive respect combines with a rigorous demand for understanding, metaphysical activity will appear. Since no ready-made yardstick is presupposed, no determinate and soluble problems arise for the metaphysician: to his inquiries there are no 'right answers'. He is not faced with the limited and manageable relation which arises between a conceptual instrument and the object it is applied to: he is faced with the object itself, in its fulness; and the object meets him not as a cluster of problems but as a single though manifold mystery. His purpose is to understand it as well as he may. Since the human mind understands in the act of discourse, and not by simple intuition, to understand will be to describe. The metaphysician seeks to understand his mysteries in seeking to describe them.

1. (*a*) Explain in your own words 'the difference between problems and mysteries' (ll. 1–2).

(*b*) Give one example of each not drawn from the passage.

2. Explain what the writer means by the following phrases:

(*a*) 'a conceptual instrument' (ll. 36–37).
(*b*) 'respect for fact' (l. 57).
(*c*) 'respect for being' (l. 58).
(*d*) 'exclusive preoccupation with the yardstick business' (ll. 59–60).
(*e*) 'the metaphysician seeks to understand his mysteries in seeking to describe them' (ll. 95–96).

3. What factors, in the nature of the case, limit and hinder the metaphysician, so that he can never really hope to 'solve a mystery'?

4. Using the writer's distinction between problems and mysteries, show how the controversy between the scientific theory of evolution and religious belief in creation might be better understood and perhaps even resolved.

VIII

SUPPOSE we begin by asking the question which many others have asked: 'Did the Resurrection occur?' It sounds a very simple, straightforward question, like: 'Did Queen Anne's death occur?' But a moment's reflection makes it plain that, and not for the first time, grammatical similarities may be deceptive. If the word 'Resurrection' refers to such 'data' as an 'Empty Tomb', 'visions', &c., all these might not only have happened but be believed, without in any sense there being a Christian belief in the Resurrection; without there being Christian commitment. It might, for instance, always be said that there was an earthquake; that parallels could be drawn from abnormal psychology, and so on. So 'Did the Resurrection occur?' has *not* the same logic as 'Did the empty tomb occur?' if for no other reason than that the second can be asserted while the first is denied, and the second might even be, and by some has been, denied, while the first has been asserted. What then can we say about it?

My suggestion is, that 'Did the Resurrection occur?', while being no logical kinsman of 'Did Queen Anne's death occur?', is logically much more similar to our asking in regard of a certain situation 'Is that a case of duty?', 'Is that a case of genuine personal devotion?' We can recall . . . the example of the man saving the drowning child. Clearly, evidence is relevant to our answering the question: 'Is that a case of duty?' We see the man's momentary hesitation, his dive in, his gripping the child, his exhausted condition as they both come to the bank . . . all this leads us to congratulate him on his sense of duty. But the sceptic on the bank could say: 'Not necessarily so'; and he could, in all kinds of whispers, formulate alternatives. The 'hero' might have saved the child because he hoped

to ingratiate himself with the parents; he might have saved the child to get a reward; he might have saved the child for no more than self-display, and the momentary hesitation was all part of the deception; who knows? His diving in may have been the work of some instinct or complex, and the rest; even more, he might have jumped because he was frightened lest he be accused of neglect or callousness. He might have yielded to no more than supposed public opinion. And if the current proved too strong and he and the child were drowned, the sceptic might still whisper that it was only a few days before that the man had said he had had enough of life, and might not this have been suicide? And so on.

In other words here again we have a question, for the answering of which evidence is relevant; but the evidence might all be believed without the question itself being answered in the affirmative. In both the case of the drowning child and the case of the Resurrection, 'evidence' has a strange empirical relevance. It must certainly be examined, and, as we have said, is undoubtedly relevant. But in each case the puzzle arises that no amount of 'evidence' alone guarantees that in relation to which it is considered, namely, the 'Resurrection' on the one hand, or 'duty' on the other.

May not this be because no amount of 'evidence' alone can guarantee what exceeds all the evidence taken together: something which is spatio-temporal and more? 'Resurrection', like 'duty' and 'love', all specify occasions . . . for which a whole host of empirical criteria are relevant, but these criteria are organized by, and are never exhaustive evidence for the loyalties they name. None of the criteria in itself guarantees that situation—discernment-response—which exceeds them all.

Once again we see how the Christian faith centres on

an odd situation, and it is precisely such an odd situation which the language of the Gospels somehow or other must, and does, evoke. As we have noticed, and supposing Lightfoot is right, the impropriety of Mark xvi. 8[1] would bespeak such a situation. Again, is it not significant that the 'Risen Christ' was known in the Garden, when the situation came alive, by the use of the personal intimate name 'Mary'?[2] Here was a situation for which the general name, the trade name, the impersonal term 'the gardener',[3] had not been sufficient. Again, at the moment when the 'Risen Christ' is known in the village house in Emmaus, he ceases to be 'seen' in a perceptual sense: '. . . their eyes were opened, and they knew him; and he vanished out of their sight'.[4] What is distinctive and important about the Risen Christ is something other than 'what's seen'. The hearts of the two travellers may have 'burned' within them 'in the way',[5] but the penny had not fully dropped, the light had not then dawned. As the Greek text suggests, their hearts at this point had only been 'ignited'.[6] When the flame leapt up and the full disclosure came, there was a situation whose significance lay in its *oddness*; a situation in which the Risen Christ was 'known', though he had 'vanished out of their sight'.[7] The Resurrection is nothing if not odd.

Let me make two further points:

(*a*) First, what about 'dating' the Resurrection? Plainly, in so far as the Resurrection concerns observational events which have a place in time, it can be

[1] St. Mark's Gospel ends abruptly here with the words 'For they were afraid'. Lightfoot claims this as the true ending of the Gospel, and that it is not as, some others hold, due to some accident to the manuscript.—R.W.Y.

[2] John xx. 16.

[3] John xx. 15.

[4] Luke xxiv. 31.

[5] Luke xxiv. 32.

[6] καίω = I ignite, light.

[7] Luke xxiv. 31.

dated as much as the Crucifixion can be dated. We can, for instance, date the Empty Tomb. But what I have been saying implies that, *taken as a whole*, that to which the word 'Resurrection' applies cannot be dated, simply because the language of dating is just not appropriate for a situation which is not only spatio-temporal, *but more*. We cannot *date* the *Resurrection*: any more than we can walk out with Pythagoras' theorem, or find the square root of love. Again, the Resurrection cannot in strict truth be dated any more than 'duty' can be wholly exhausted by a story of spatio-temporal consequences. So, when we confess that 'the third day He rose again from the dead', the confession has sufficient logical impropriety to be an appropriate currency for what the Christian believes about the Resurrection. It is logically very distant from a grammatical parallel such as 'The third day he rose again from his bed.'

(*b*) The second point: From another angle what all this amounts to saying is that—*strictly and carefully* speaking—no one can be doubtful about the 'Resurrection' as we may be doubtful about empirical events such as whether Winston Churchill sent a certain war telegram to Montgomery or not. Here is another logical impossibility. A person may 'doubt' the Empty Tomb, but all that can happen, and the worst that can happen, with the 'Resurrection' is that a person can be converted into infidelity; can lose that discernment-commitment we have discussed earlier. In this connexion, we may notice how appropriate it is that in the examples William James gives of conversions into infidelity, the whole world is said to become 'flat' and to grow 'bleak' and 'cold'. For to talk of the world growing 'flat' is to make the point that discernment ceases; to say that the world grows 'cold' is to talk of ourselves as inactive and unresponsive. To disbelieve

the Resurrection is, in this way, to be converted to infidelity. The truth of the Resurrection is logically integrated with our commitment in Christ.

1. What does the writer mean by:

(*a*) 'logical kinsman' (l. 21)

(*b*) 'empirical relevance' (l. 54)?

2. Explain how 'the third day He rose again from the dead' (l. 112) is (*a*) 'logically improper', and (*b*) 'appropriate currency for what the Christian believes about the Resurrection'.

3. Explain the writer's distinction between 'doubting' something and 'being converted to infidelity'.

4. What would you say in answer to the sceptic in the second paragraph?

5. To what extent, according to the writer, are we justified in speaking of the Resurrection as an 'historical event', and how far are we not?

6. In what ways do you think 'Did the Resurrection occur?' *differs from* 'Is that a case of duty?'?

IX

(*a*) Reason hath moons, but moons not hers
Lie mirror'd on her sea,
Confounding her astronomers,
But, oh!, delighting me.

(*b*) Scientific propositions are either accurate or inaccurate; their terms can be exactly defined; they say precisely what they mean, neither more nor less; there is no mystery about them. But the language of religion cannot be like this. Religion is concerned with the mystery of God; we look out on nature which the sciences study and

Lo, these are but the outskirts of his ways;
And how small a whisper do we hear of him!
But the thunder of his power who can understand?

We can only use human language to speak of God; hence our religious speech must be metaphorical, symbolic, analogical. The truths of religion, therefore, are more like the truths of poetry than like the truths of science.

Such an admission causes anxiety to some religious minds, for there is a popular notion that what the scientists say is true, and that what the poets say is but half true at best. This is a mistake. The scientific astronomer has much of importance to tell us about the stars; he will explain to us how far away they are, of what they are composed, how old they are, what they weigh, and how fast they travel. His instructions we gratefully receive. The poet who wrote, 'When I consider thy heavens, the work of thy fingers, the moon and the stars, which thou hast ordained', was quite ignorant of all the facts of modern astronomy, but he is telling us that God made the stars, and it is his will that they obey. These facts if they be true are certainly not secondary truths. We may properly say that to the poet are revealed deeper, more important truths, than anything to be learnt by looking through a telescope. That God created the heavens and the earth is primary. We must admit at the same time, however, that the idea of creation is a name or symbol for a great mystery which we cannot imagine, and that the 'will' of God is an analogy taken from the will of human beings. The poet's truths, deeper and more important though they may be than the scientific truths, are not themselves scientifically true. Scientific truths are such in so far as they are accurate; they are never true in the sense of telling us the whole truth about their subject. Every object that falls within the scope of science has, for instance, an aesthetic aspect with which the natural sciences cannot deal at all. No one should dispute what Baedeker says about

Mont Blanc, but Shelley and Coleridge have much to say about the mountain which no guide book and scientific textbook can reveal. The poets are concerned with truth, with the interpretation of the real and actual world; they are the seers. Perhaps we may be allowed to say that the sphere of science is outsight, and that of poetry in-sight. We can dispense with neither. Here obviously religion is more akin to poetry than to science, and you will not suppose that, when I claim that religious truth is more like the truth of poetry than the truth of the natural sciences, I am suggesting that religious truth is an inferior brand of truth.

Religion and poetry are akin, and I think that we might say that some forms of religion such as the religion of Ikhnaton, of Plato, of Aristotle, of Spinoza, or of Hegel, are a special kind of poetry. But the traditional Christian religion with Judaism is not a special kind of poetry. It is tied, as poetry is not, to history. When we assert, for instance, that 'Christ died for our sins', we are, or we claim to be, asserting a fact, not a poetical truth. Yet certainly it is not, as stated, a scientific fact in the sense of a fact with which the natural sciences can deal. It is, so to put it, a fact of insight, not of demonstration; it is, in intention at least, not a value attached to a historical fact; it is itself, or is alleged to be, a simple fact. Christians are asserting a fact which they see or dimly see; but they do not see it as an inevitable conclusion of a syllogism or as the result of scientific or historical inquiry.

1. Describe, in not more than 50 of your own words, the point made in common by (*a*) and (*b*).

2. What do you understand the writer of (*b*) to mean by the following pairs of terms:

(*a*) 'scientific truth': 'poetical truth' (ll. 17–19).

(*b*) 'out-sight': 'in-sight' (ll. 56–57).
(*c*) Christian fact: scientific fact (ll. 70–78).
(*d*) 'conclusion of a syllogism': 'result of historical inquiry' (ll. 79–80).

3. What distinctions does the writer of (*b*) draw between different religions, and why?

4. Suggest some ways of supporting:
(*a*) scientific statements;
(*b*) religious statements.

SOME SUGGESTED ANSWERS

PART ONE

Exercise D. VI (pp. 67–68)

1. (*a*) al 'Ubaid was not occupied over a very long period since continuous occupation over a period leads to the 'layering' of deposits.

(*b*) al 'Ubaid was not conquered and occupied by a foreign people since this leads to a change in the type of deposit on a site and to more than one layer being left.

(*c*) Nothing else occurred to seal off the occupation site into strata, not even a few years' desertion.

4. I should expect to find the city wall and its foundations, and beyond these the city itself.

5. My explanation would be that the seasonal floods of the river reached the north-east edge of the tip regularly, and the heavier rubbish they washed down would be deposited along with the water-laid clay when the high water receded.

PART TWO

Exercise A. IV (pp. 79–83)

2. (*a*) The word 'red-haired' describes a physical characteristic, and thus we can decide by observation whether 'all men are red-haired' is true or false. In fact it is false. But 'equal' in Oldspeak, as used in this sentence, makes a value judgement—that all men have 'equal natural rights' or should be treated as 'legally or politically equal'—and the truth or falsity of this cannot be established by observation.

4. (*b*) Scientific: engaged in, used in, or pertaining to natural science; (of knowledge, information, &c.) belonging to one of the natural sciences, physics, chemistry, &c.; (of investigation, &c.) according to the rules laid down by scientists for testing the soundness of conclusions; hence, systematic, accurate. We then pass to uses of the word where the expert knowledge connected with science is transferred to other fields, e.g. 'scientific torture', 'a scientific cricketer'. Owing to the present prestige of the natural sciences the word 'scientific' has more and more gathered emotive force, signifying approval and excellence, so that anything that is dubbed 'scientific' tends *ipso facto* either to be admired or else to be thought incontrovertibly true. Thus advertisers claim a toothpaste is 'the only scientific toothpaste on the market', though the word has here lost its descriptive meaning (other toothpastes, after all, are produced as a result

of research and methodical techniques), and the word merely seeks to commend the article by appealing to the aura of mystery and approval which science evokes. Again, perhaps, a theory is claimed to have been 'scientifically proved to be true', although rival theories also embody expert knowledge and systematic procedures. The word is used to imply that the theory cannot be wrong, and this despite the fact that many scientific theories have been proved false, and *scientifically* so proved, no doubt, at that!

Exercise B. V (pp. 92–94)

2. (*b*) Justice and injustice are not natural endowments of the individual man, in the way that his feelings, and his senses, and his bodily or mental aptitudes are. The words describe certain relations between men living in society.

(*d*) Terms mutually agreed upon by individuals or societies by which they can live at peace with each other.

4. 'Laws of Nature' implies that these 'articles' are inherent in the natural state of men, whereas the author's whole point is that they are not: they are worked out and agreed upon by men through their powers of reason and for their own convenience.

5. (*a*) Nothing can be just or unjust in the state of war for two reasons. First, the state of war is such that every man's hand is against his neighbour. It is a state in which each man can only keep his possessions by force or fraud; nor does any more powerful authority exist to enforce commonly accepted rules between disputants; if there were such an authority then *ex hypothesi* there would be no state of war. Secondly, this situation arises because of the very nature of justice and injustice; these are not objective values binding on anyone who has the capacity to discern them. Nor are they standards which apply to an individual's behaviour anyway: they are rather agreed rules which relate only to men as they live in societies, and which are worked out and are binding upon only those men who are consenting members of the society.

Exercise B. VII (pp. 96–98)

1. (*a*) Polemarchus' thesis is that justice is to benefit one's friends and harm one's enemies.

(*b*) Socrates' conclusion is that justice is useless when you are using things and useful when you are not; and therefore not a very important thing.

2. (1) A just man best helps his friends and harms his enemies in war, as, for example, a doctor can in matters of health.

(2) But he is not useless in peace.

(3) For justice is useful in business, as, for example, agriculture is useful in producing crops.

(4) But in business transactions and partnerships the expert, for example the bricklayer in a building business, is more useful than the just man.

(5) Moreover, in buying and selling things, such as a horse or a ship, the expert, in these cases the farrier or the shipwright, is also more useful than the just man.

(6) Therefore the just man must be useful, not in buying and using things, but in banking things and laying them aside.

(7) But if a just man is only useful when we do not want to use things, then justice cannot be a very important thing.

3. (*a*) The main assumption is that justice is a kind of professional skill, parallel to the skills of the doctor, navigator, trainer, &c., which each have their own specialized uses.

(*b*) No. Justice is not a specialized skill; it is a way of conducting oneself in society, which affects every activity. This can be shown by the fact that a man may practise his specialized skill (say, as a doctor) *at the same time as* being just. Or again one might say that although a man can only use his skill as a navigator, for example, when he is sailing a ship, the just principles by which he guides his life will be apparent in all his dealings. Justice is not therefore some *thing* which one can *use*; rather it is an attitude, an outlook, a way of behaving which makes itself felt in every activity and tells you as much about what a man *is* as about what he *does*.

4. Polemarchus assumes, and Socrates concedes this, that in fighting a war one's friends will be in the right and one's enemies in the wrong. Therefore by helping the former and fighting against the latter one will be acting justly because one is fighting for a just cause.

This has a certain plausibility: one certainly likes to think that one's own side is in the right, and is fighting for justice, and that the enemy is in the wrong. But so unfortunately does the enemy. And to equate the cause of one's friends with the cause of justice is tendentious, to say the least. Moreover the argument states one is acting justly by the mere fact of benefiting one's friends (in this case, fighting for them) *because they are one's friends*, and *not because their cause is just*. But loyalty to friends in an unjust cause does not constitute just action.

5. In the field of government today we still hold to the traditional view that the promotion of justice and peace is not a matter for the trained expert but for the ordinary man, fortified no doubt by experience and acquired powers of judgement. Indeed, the whole foundation of our democratic form of government, with its elected representatives and its ministerial appointments, is that politics and justice (in the wide sense in which Plato is using the latter word) are

matters on which *every* person should have a say, whether he is trained or not. In part at least this is due to the recognition that justice (the equitable ordering of society) is not a field in which there are 'right answers', but one in which human understanding, moral insight, and personal decision all play their part. It is true that the Government has vast numbers of experts at its disposal, but their submissions are most carefully distinguished from the decisions of Ministers and Parliament. It is assumed in making this distinction that expert knowledge is not in itself sufficient or compelling: it is morally neutral. Moral decision, however much based upon it, is an additional and separable activity.

Two trends in present-day thinking suggest that there is unfortunately some undermining of this traditional distinction, and that something nearer to Plato's mistaken conception of justice as an expertise may replace it.

First, the work of sociologists has tended to suggest that the right organization of society *is* an expertise after all. It sometimes seems that the results of sociological investigation are considered to tell us in themselves that certain actions are just and others unjust. Yet in reality the deciding of what is just or unjust cannot be equated with sociological fact-finding (though it may certainly be aided by it). This is partly because factual premisses do not lead to moral conclusions, and partly because justice is not an expert skill as sociology is.

Secondly, in current discussions on education it is occasionally implied that education in the humanities (which presumably includes some understanding of moral and political issues) is always on all fours with training in the sciences. It may be that specialized training in French grammar or certain kinds of historical knowledge, for example, is parallel to specialization in atomic physics or pigmentation. But it does not follow that all scientific and humane studies are therefore on an equal footing when it comes to educating 'the whole man'. This would only be so if we conceded to Plato that justice *was* a skill and that those who govern ought to be trained specialists in the same way as chief engineers in power stations are. In fact, as Aristotle pointed out, scientific skills are 'powers available for opposite moral ends', whereas certain humane studies are concerned with those moral ends themselves. They do not train a man in them, as chemistry trains a man to be a chemist. But they provide the context of vicarious experience, moral insight, and personal relationships through which greater understanding of moral issues and of responsible decision may be attained. While a person who has in this sense studied the humanities may well rely on his contemporaries who have been trained in science for expert knowledge of technical matters, he cannot afford to let these scientific contemporaries rely on him for moral and political

decision. At least he cannot do so if he accepts the assumptions on which our democracy is based—one of which is that justice is not a specialized technique or body of knowledge.

Exercise C. I (*pp. 101–2*)

1. It is History, truly interpreted, and not the Bible, which provides the key to Truth, that is, to the true meaning of Man's existence.

2. (1) The Bible was rejected in favour of an historical understanding of Man.

(2) Truth was no longer fixed and absolute, but relative to historical progress.

(3) Geology and Biology, with their ideas of historical development, overthrew the biblical view of Man and Creation.

(4) Science was influenced by historical ideas and was thus enabled to give a picture of Past and Future different from the Bible's.

(5) On the other hand historical studies used scientific methods for weighing evidence and determining events.

(6) Thus belief in historico-scientific discoveries completed the overthrow of the Bible from its previous position of infallibility.

4. (*c*) Evolutionary biologists are imagined as asking this question in order to challenge the biblical belief in God's endowment of Man with a soul. The implication is that since no precise moment can be pin-pointed for the giving of a soul to Man, and since the evolutionary process is continuous, the biblical doctrine is unnecessary and untrue.

(*d*) Caesar's arrival in Britain is taken as comparable, so far as determining its occurrence is concerned, to the Crucifixion of Christ. For the former event we have certain historical data—literary and archaeological—which can be subjected to scientific scrutiny; a similar scientific scrutiny should therefore be the only valid method of determining the occurrence of the latter event. It is implied that the latter will not stand up to the test.

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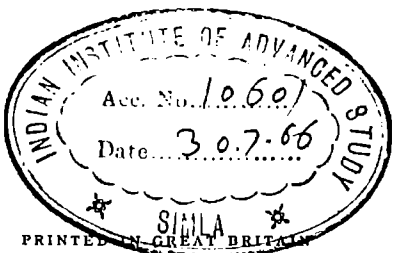

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