CHAPTER THE FIRST

THE NEW SOURCE OF ENERGY

Section 1

The problem which was already being mooted by such scientific men as Ramsay, Rutherford, and Soddy, in the very beginning of the twentieth century, the problem of inducing radio-activity in the heavier elements and so tapping the internal energy of atoms, was solved by a wonderful combination of induction, intuition, and luck by Holsten so soon as the year 1933. From the first detection of radio-activity to its first subjugation to human purpose measured little more than a quarter of a century. For twenty years after that, indeed, minor difficulties prevented any striking practical application of his success, but the essential thing was done, this new boundary in the march of human progress was crossed, in that year. He set up atomic disintegration in a minute particle of bismuth; it exploded with great violence into a heavy gas of extreme radio-activity, which disintegrated in its turn in the course of seven days, and it was only after another year's work that he was able to show practically that the last result of this rapid release of energy was gold. But the thing was done--at the cost of a blistered chest and an injured finger, and from the moment when the invisible speck of bismuth flashed into riving and rending energy, Holsten knew that he had opened a way for mankind, however narrow and dark it might still be, to worlds of limitless power. He recorded as much in the

strange diary biography he left the world, a diary that was up to that particular moment a mass of speculations and calculations, and which suddenly became for a space an amazingly minute and human record of sensations and emotions that all humanity might understand.

He gives, in broken phrases and often single words, it is true, but none the less vividly for that, a record of the twenty-four hours following the demonstration of the correctness of his intricate tracery of computations and guesses. 'I thought I should not sleep,' he writes--the words he omitted are supplied in brackets--(on account of) 'pain in (the) hand and chest and (the) wonder of what I had done.... Slept like a child.'

He felt strange and disconcerted the next morning; he had nothing to do, he was living alone in apartments in Bloomsbury, and he decided to go up to Hampstead Heath, which he had known when he was a little boy as a breezy playground. He went up by the underground tube that was then the recognised means of travel from one part of London to another, and walked up Heath Street from the tube station to the open heath. He found it a gully of planks and scaffoldings between the hoardings of house-wreckers. The spirit of the times had seized upon that narrow, steep, and winding thoroughfare, and was in the act of making it commodious and interesting, according to the remarkable ideals of Neo-Georgian aestheticism. Such is the illogical quality of humanity that Holsten, fresh from work that was like a petard under the seat of current civilisation, saw these changes with regret. He had come up

Heath Street perhaps a thousand times, had known the windows of all the little shops, spent hours in the vanished cinematograph theatre, and marvelled at the high-flung early Georgian houses upon the westward bank of that old gully of a thoroughfare; he felt strange with all these familiar things gone. He escaped at last with a feeling of relief from this choked alley of trenches and holes and cranes, and emerged upon the old familiar scene about the White Stone Pond. That, at least, was very much as it used to be.

There were still the fine old red-brick houses to left and right of him; the reservoir had been improved by a portico of marble, the white-fronted inn with the clustering flowers above its portico still stood out at the angle of the ways, and the blue view to Harrow Hill and Harrow spire, a view of hills and trees and shining waters and wind-driven cloud shadows, was like the opening of a great window to the ascending Londoner. All that was very reassuring. There was the same strolling crowd, the same perpetual miracle of motors dodging through it harmlessly, escaping headlong into the country from the Sabbatical stuffiness behind and below them. There was a band still, a women's suffrage meeting--for the suffrage women had won their way back to the tolerance, a trifle derisive, of the populace again--socialist orators, politicians, a band, and the same wild uproar of dogs, frantic with the gladness of their one blessed weekly release from the back yard and the chain. And away along the road to the Spaniards strolled a vast multitude, saying, as ever, that the view of London was exceptionally clear that day.

Young Holsten's face was white. He walked with that uneasy affectation of ease that marks an overstrained nervous system and an under-exercised body. He hesitated at the White Stone Pond whether to go to the left of it or the right, and again at the fork of the roads. He kept shifting his stick in his hand, and every now and then he would get in the way of people on the footpath or be jostled by them because of the uncertainty of his movements. He felt, he confesses, 'inadequate to ordinary existence.' He seemed to himself to be something inhuman and mischievous. All the people about him looked fairly prosperous, fairly happy, fairly well adapted to the lives they had to lead--a week of work and a Sunday of best clothes and mild promenading--and he had launched something that would disorganise the entire fabric that held their contentments and ambitions and satisfactions together. 'Felt like an imbecile who has presented a box full of loaded revolvers to a Creche,' he notes.

He met a man named Lawson, an old school-fellow, of whom history now knows only that he was red-faced and had a terrier. He and Holsten walked together and Holsten was sufficiently pale and jumpy for Lawson to tell him he overworked and needed a holiday. They sat down at a little table outside the County Council house of Golders Hill Park and sent one of the waiters to the Bull and Bush for a couple of bottles of beer, no doubt at Lawson's suggestion. The beer warmed Holsten's rather dehumanised system. He began to tell Lawson as clearly as he could to what his great discovery amounted. Lawson feigned attention, but indeed

he had neither the knowledge nor the imagination to understand. 'In the end, before many years are out, this must eventually change war, transit, lighting, building, and every sort of manufacture, even agriculture, every material human concern----'

Then Holsten stopped short. Lawson had leapt to his feet. 'Damn that dog!' cried Lawson. 'Look at it now. Hi! Here! Phewoo--phewoo phewoo! Come HERE, Bobs! Come HERE!'

The young scientific man, with his bandaged hand, sat at the green table, too tired to convey the wonder of the thing he had sought so long, his friend whistled and bawled for his dog, and the Sunday people drifted about them through the spring sunshine. For a moment or so Holsten stared at Lawson in astonishment, for he had been too intent upon what he had been saying to realise how little Lawson had attended.

Then he remarked, 'WELL!' and smiled faintly, and--finished the tankard of beer before him.

Lawson sat down again. 'One must look after one's dog,' he said, with a note of apology. 'What was it you were telling me?'

Section 2

In the evening Holsten went out again. He walked to Saint Paul's Cathedral, and stood for a time near the door listening to the evening

service. The candles upon the altar reminded him in some odd way of the fireflies at Fiesole. Then he walked back through the evening lights to Westminster. He was oppressed, he was indeed scared, by his sense of the immense consequences of his discovery. He had a vague idea that night that he ought not to publish his results, that they were premature, that some secret association of wise men should take care of his work and hand it on from generation to generation until the world was riper for its practical application. He felt that nobody in all the thousands of people he passed had really awakened to the fact of change, they trusted the world for what it was, not to alter too rapidly, to respect their trusts, their assurances, their habits, their little accustomed traffics and hard-won positions.

He went into those little gardens beneath the over-hanging, brightly-lit masses of the Savoy Hotel and the Hotel Cecil. He sat down on a seat and became aware of the talk of the two people next to him. It was the talk of a young couple evidently on the eve of marriage. The man was congratulating himself on having regular employment at last; 'they like me,' he said, 'and I like the job. If I work up--in'r dozen years or so I ought to be gettin' somethin' pretty comfortable. That's the plain sense of it, Hetty. There ain't no reason whatsoever why we shouldn't get along very decently--very decently indeed.'

The desire for little successes amidst conditions securely fixed! So it struck upon Holsten's mind. He added in his diary, 'I had a sense of all this globe as that....'

By that phrase he meant a kind of clairvoyant vision of this populated world as a whole, of all its cities and towns and villages, its high roads and the inns beside them, its gardens and farms and upland pastures, its boatmen and sailors, its ships coming along the great circles of the ocean, its time-tables and appointments and payments and dues as it were one unified and progressive spectacle. Sometimes such visions came to him; his mind, accustomed to great generalisations and yet acutely sensitive to detail, saw things far more comprehensively than the minds of most of his contemporaries. Usually the teeming sphere moved on to its predestined ends and circled with a stately swiftness on its path about the sun. Usually it was all a living progress that altered under his regard. But now fatigue a little deadened him to that incessancy of life, it seemed now just an eternal circling. He lapsed to the commoner persuasion of the great fixities and recurrencies of the human routine. The remoter past of wandering savagery, the inevitable changes of to-morrow were veiled, and he saw only day and night, seed-time and harvest, loving and begetting, births and deaths, walks in the summer sunlight and tales by the winter fireside, the ancient sequence of hope and acts and age perennially renewed, eddying on for ever and ever, save that now the impious hand of research was raised to overthrow this drowsy, gently humming, habitual, sunlit spinning-top of man's existence....

For a time he forgot wars and crimes and hates and persecutions, famine and pestilence, the cruelties of beasts, weariness and the bitter wind,

failure and insufficiency and retrocession. He saw all mankind in terms of the humble Sunday couple upon the seat beside him, who schemed their inglorious outlook and improbable contentments. 'I had a sense of all this globe as that.'

His intelligence struggled against this mood and struggled for a time in vain. He reassured himself against the invasion of this disconcerting idea that he was something strange and inhuman, a loose wanderer from the flock returning with evil gifts from his sustained unnatural excursions amidst the darknesses and phosphorescences beneath the fair surfaces of life. Man had not been always thus; the instincts and desires of the little home, the little plot, was not all his nature; also he was an adventurer, an experimenter, an unresting curiosity, an insatiable desire. For a few thousand generations indeed he had tilled the earth and followed the seasons, saying his prayers, grinding his corn and trampling the October winepress, yet not for so long but that he was still full of restless stirrings.

'If there have been home and routine and the field,' thought Holsten, 'there have also been wonder and the sea.'

He turned his head and looked up over the back of the seat at the great hotels above him, full of softly shaded lights and the glow and colour and stir of feasting. Might his gift to mankind mean simply more of that? . . .

He got up and walked out of the garden, surveyed a passing tram-car, laden with warm light, against the deep blues of evening, dripping and trailing long skirts of shining reflection; he crossed the Embankment and stood for a time watching the dark river and turning ever and again to the lit buildings and bridges. His mind began to scheme conceivable replacements of all those clustering arrangements. . . .

'It has begun,' he writes in the diary in which these things are recorded. 'It is not for me to reach out to consequences I cannot foresee. I am a part, not a whole; I am a little instrument in the armoury of Change. If I were to burn all these papers, before a score of years had passed, some other man would be doing this. . .

Section 3

Holsten, before he died, was destined to see atomic energy dominating every other source of power, but for some years yet a vast network of difficulties in detail and application kept the new discovery from any effective invasion of ordinary life. The path from the laboratory to the workshop is sometimes a tortuous one; electro-magnetic radiations were known and demonstrated for twenty years before Marconi made them practically available, and in the same way it was twenty years before induced radio-activity could be brought to practical utilisation. The thing, of course, was discussed very much, more perhaps at the time of its discovery than during the interval of technical adaptation, but with very little realisation of the huge economic revolution that impended.

What chiefly impressed the journalists of 1933 was the production of gold from bismuth and the realisation albeit upon unprofitable lines of the alchemist's dreams; there was a considerable amount of discussion and expectation in that more intelligent section of the educated publics of the various civilised countries which followed scientific development; but for the most part the world went about its business--as the inhabitants of those Swiss villages which live under the perpetual threat of overhanging rocks and mountains go about their business--just as though the possible was impossible, as though the inevitable was postponed for ever because it was delayed.

It was in 1953 that the first Holsten-Roberts engine brought induced radio-activity into the sphere of industrial production, and its first general use was to replace the steam-engine in electrical generating stations. Hard upon the appearance of this came the Dass-Tata engine--the invention of two among the brilliant galaxy of Bengali inventors the modernisation of Indian thought was producing at this time--which was used chiefly for automobiles, aeroplanes, waterplanes, and such-like, mobile purposes. The American Kemp engine, differing widely in principle but equally practicable, and the Krupp-Erlanger came hard upon the heels of this, and by the autumn of 1954 a gigantic replacement of industrial methods and machinery was in progress all about the habitable globe. Small wonder was this when the cost, even of these earliest and clumsiest of atomic engines, is compared with that of the power they superseded. Allowing for lubrication the Dass-Tata engine, once it was started cost a penny to run thirty-seven miles,

and added only nine and quarter pounds to the weight of the carriage it drove. It made the heavy alcohol-driven automobile of the time ridiculous in appearance as well as preposterously costly. For many years the price of coal and every form of liquid fuel had been clambering to levels that made even the revival of the draft horse seem a practicable possibility, and now with the abrupt relaxation of this stringency, the change in appearance of the traffic upon the world's roads was instantaneous. In three years the frightful armoured monsters that had hooted and smoked and thundered about the world for four awful decades were swept away to the dealers in old metal, and the highways thronged with light and clean and shimmering shapes of silvered steel.

At the same time a new impetus was given to aviation by the relatively enormous power for weight of the atomic engine, it was at last possible to add Redmayne's ingenious helicopter ascent and descent engine to the vertical propeller that had hitherto been the sole driving force of the aeroplane without overweighting the machine, and men found themselves possessed of an instrument of flight that could hover or ascend or descend vertically and gently as well as rush wildly through the air.

The last dread of flying vanished. As the journalists of the time phrased it, this was the epoch of the Leap into the Air. The new atomic aeroplane became indeed a mania; every one of means was frantic to possess a thing so controllable, so secure and so free from the dust and danger of the road, and in France alone in the year 1943 thirty thousand of these new aeroplanes were manufactured and licensed, and soared humming softly into the sky.

And with an equal speed atomic engines of various types invaded industrialism. The railways paid enormous premiums for priority in the delivery of atomic traction engines, atomic smelting was embarked upon so eagerly as to lead to a number of disastrous explosions due to inexperienced handling of the new power, and the revolutionary cheapening of both materials and electricity made the entire reconstruction of domestic buildings a matter merely dependent upon a reorganisation of the methods of the builder and the house-furnisher. Viewed from the side of the new power and from the point of view of those who financed and manufactured the new engines and material it required the age of the Leap into the Air was one of astonishing prosperity. Patent-holding companies were presently paying dividends of five or six hundred per cent. and enormous fortunes were made and fantastic wages earned by all who were concerned in the new developments. This prosperity was not a little enhanced by the fact that in both the Dass-Tata and Holsten-Roberts engines one of the recoverable waste products was gold--the former disintegrated dust of bismuth and the latter dust of lead--and that this new supply of gold led quite naturally to a rise in prices throughout the world.

This spectacle of feverish enterprise was productivity, this crowding flight of happy and fortunate rich people--every great city was as if a crawling ant-hill had suddenly taken wing--was the bright side of the opening phase of the new epoch in human history. Beneath that brightness was a gathering darkness, a deepening dismay. If there was a vast development of production there was also a huge destruction of values.

These glaring factories working night and day, these glittering new vehicles swinging noiselessly along the roads, these flights of dragon-flies that swooped and soared and circled in the air, were indeed no more than the brightnesses of lamps and fires that gleam out when the world sinks towards twilight and the night. Between these high lights accumulated disaster, social catastrophe. The coal mines were manifestly doomed to closure at no very distant date, the vast amount of capital invested in oil was becoming unsaleable, millions of coal miners, steel workers upon the old lines, vast swarms of unskilled or under-skilled labourers in innumerable occupations, were being flung out of employment by the superior efficiency of the new machinery, the rapid fall in the cost of transit was destroying high land values at every centre of population, the value of existing house property had become problematical, gold was undergoing headlong depreciation, all the securities upon which the credit of the world rested were slipping and sliding, banks were tottering, the stock exchanges were scenes of feverish panic;--this was the reverse of the spectacle, these were the black and monstrous under-consequences of the Leap into the Air.

There is a story of a demented London stockbroker running out into Threadneedle Street and tearing off his clothes as he ran. 'The Steel Trust is scrapping the whole of its plant,' he shouted. 'The State Railways are going to scrap all their engines. Everything's going to be scrapped--everything. Come and scrap the mint, you fellows, come and scrap the mint!'

In the year 1955 the suicide rate for the United States of America quadrupled any previous record. There was an enormous increase also in violent crime throughout the world. The thing had come upon an unprepared humanity; it seemed as though human society was to be smashed by its own magnificent gains.

For there had been no foresight of these things. There had been no attempt anywhere even to compute the probable dislocations this flood of inexpensive energy would produce in human affairs. The world in these days was not really governed at all, in the sense in which government came to be understood in subsequent years. Government was a treaty, not a design; it was forensic, conservative, disputatious, unseeing, unthinking, uncreative; throughout the world, except where the vestiges of absolutism still sheltered the court favourite and the trusted servant, it was in the hands of the predominant caste of lawyers, who had an enormous advantage in being the only trained caste. Their professional education and every circumstance in the manipulation of the fantastically naive electoral methods by which they clambered to power, conspired to keep them contemptuous of facts, conscientiously unimaginative, alert to claim and seize advantages and suspicious of every generosity. Government was an obstructive business of energetic fractions, progress went on outside of and in spite of public activities, and legislation was the last crippling recognition of needs so clamorous and imperative and facts so aggressively established as to invade even the dingy seclusions of the judges and threaten the very existence of the otherwise inattentive political machine.

The world was so little governed that with the very coming of plenty, in the full tide of an incalculable abundance, when everything necessary to satisfy human needs and everything necessary to realise such will and purpose as existed then in human hearts was already at hand, one has still to tell of hardship, famine, anger, confusion, conflict, and incoherent suffering. There was no scheme for the distribution of this vast new wealth that had come at last within the reach of men; there was no clear conception that any such distribution was possible. As one attempts a comprehensive view of those opening years of the new age, as one measures it against the latent achievement that later years have demonstrated, one begins to measure the blindness, the narrowness, the insensate unimaginative individualism of the pre-atomic time. Under this tremendous dawn of power and freedom, under a sky ablaze with promise, in the very presence of science standing like some bountiful goddess over all the squat darknesses of human life, holding patiently in her strong arms, until men chose to take them, security, plenty, the solution of riddles, the key of the bravest adventures, in her very presence, and with the earnest of her gifts in court, the world was to witness such things as the squalid spectacle of the Dass-Tata patent litigation.

There in a stuffy court in London, a grimy oblong box of a room, during the exceptional heat of the May of 1956, the leading counsel of the day argued and shouted over a miserable little matter of more royalties or less and whether the Dass-Tata company might not bar the

Holsten-Roberts' methods of utilising the new power. The Dass-Tata people were indeed making a strenuous attempt to secure a world monopoly in atomic engineering. The judge, after the manner of those times, sat raised above the court, wearing a preposterous gown and a foolish huge wig, the counsel also wore dirty-looking little wigs and queer black gowns over their usual costume, wigs and gowns that were held to be necessary to their pleading, and upon unclean wooden benches stirred and whispered artful-looking solicitors, busily scribbling reporters, the parties to the case, expert witnesses, interested people, and a jostling confusion of subpoenaed persons, briefless young barristers (forming a style on the most esteemed and truculent examples) and casual eccentric spectators who preferred this pit of iniquity to the free sunlight outside. Every one was damply hot, the examining King's Counsel wiped the perspiration from his huge, clean-shaven upper lip; and into this atmosphere of grasping contention and human exhalations the daylight filtered through a window that was manifestly dirty. The jury sat in a double pew to the left of the judge, looking as uncomfortable as frogs that have fallen into an ash-pit, and in the witness-box lied the would-be omnivorous Dass, under cross-examination....

Holsten had always been accustomed to publish his results so soon as they appeared to him to be sufficiently advanced to furnish a basis for further work, and to that confiding disposition and one happy flash of adaptive invention the alert Dass owed his claim....

But indeed a vast multitude of such sharp people were clutching,

patenting, pre-empting, monopolising this or that feature of the new development, seeking to subdue this gigantic winged power to the purposes of their little lusts and avarice. That trial is just one of innumerable disputes of the same kind. For a time the face of the world festered with patent legislation. It chanced, however, to have one oddly dramatic feature in the fact that Holsten, after being kept waiting about the court for two days as a beggar might have waited at a rich man's door, after being bullied by ushers and watched by policemen, was called as a witness, rather severely handled by counsel, and told not to 'quibble' by the judge when he was trying to be absolutely explicit.

The judge scratched his nose with a quill pen, and sneered at Holsten's astonishment round the corner of his monstrous wig. Holsten was a great man, was he? Well, in a law-court great men were put in their places.

'We want to know has the plaintiff added anything to this or hasn't he?' said the judge, 'we don't want to have your views whether Sir Philip Dass's improvements were merely superficial adaptations or whether they were implicit in your paper. No doubt--after the manner of inventors--you think most things that were ever likely to be discovered are implicit in your papers. No doubt also you think too that most subsequent additions and modifications are merely superficial. Inventors have a way of thinking that. The law isn't concerned with that sort of thing. The law has nothing to do with the vanity of inventors. The law is concerned with the question whether these patent rights have the novelty the plantiff claims for them. What that admission may or may not

stop, and all these other things you are saying in your overflowing zeal to answer more than the questions addressed to you--none of these things have anything whatever to do with the case in hand. It is a matter of constant astonishment to me in this court to see how you scientific men, with all your extraordinary claims to precision and veracity, wander and wander so soon as you get into the witness-box. I know no more unsatisfactory class of witness. The plain and simple question is, has Sir Philip Dass made any real addition to existing knowledge and methods in this matter or has he not? We don't want to know whether they were large or small additions nor what the consequences of your admission may be. That you will leave to us.'

Holsten was silent.

'Surely?' said the judge, almost pityingly.

'No, he hasn't,' said Holsten, perceiving that for once in his life he must disregard infinitesimals.

'Ah!' said the judge, 'now why couldn't you say that when counsel put the question? . . .'

An entry in Holsten's diary-autobiography, dated five days later, runs: 'Still amazed. The law is the most dangerous thing in this country. It is hundreds of years old. It hasn't an idea. The oldest of old bottles and this new wine, the most explosive wine. Something will overtake

them.'

Section 4

There was a certain truth in Holsten's assertion that the law was 'hundreds of years old.' It was, in relation to current thought and widely accepted ideas, an archaic thing. While almost all the material and methods of life had been changing rapidly and were now changing still more rapidly, the law-courts and the legislatures of the world were struggling desperately to meet modern demands with devices and procedures, conceptions of rights and property and authority and obligation that dated from the rude compromises of relatively barbaric times. The horse-hair wigs and antic dresses of the British judges, their musty courts and overbearing manners, were indeed only the outward and visible intimations of profounder anachronisms. The legal and political organisation of the earth in the middle twentieth century was indeed everywhere like a complicated garment, outworn yet strong, that now fettered the governing body that once it had protected.

Yet that same spirit of free-thinking and outspoken publication that in the field of natural science had been the beginning of the conquest of nature, was at work throughout all the eighteenth and nineteenth centuries preparing the spirit of the new world within the degenerating body of the old. The idea of a greater subordination of individual interests and established institutions to the collective future, is traceable more and more clearly in the literature of those times,

and movement after movement fretted itself away in criticism of and opposition to first this aspect and then that of the legal, social, and political order. Already in the early nineteenth century Shelley, with no scrap of alternative, is denouncing the established rulers of the world as Anarchs, and the entire system of ideas and suggestions that was known as Socialism, and more particularly its international side, feeble as it was in creative proposals or any method of transition, still witnesses to the growth of a conception of a modernised system of inter-relationships that should supplant the existing tangle of proprietary legal ideas.

The word 'Sociology' was invented by Herbert Spencer, a popular writer upon philosophical subjects, who flourished about the middle of the nineteenth century, but the idea of a state, planned as an electric-traction system is planned, without reference to pre-existing apparatus, upon scientific lines, did not take a very strong hold upon the popular imagination of the world until the twentieth century. Then, the growing impatience of the American people with the monstrous and socially paralysing party systems that had sprung out of their absurd electoral arrangements, led to the appearance of what came to be called the 'Modern State' movement, and a galaxy of brilliant writers, in America, Europe, and the East, stirred up the world to the thought of bolder rearrangements of social interaction, property, employment, education, and government, than had ever been contemplated before. No doubt these Modern State ideas were very largely the reflection upon social and political thought of the vast revolution in material things

that had been in progress for two hundred years, but for a long time they seemed to be having no more influence upon existing institutions than the writings of Rousseau and Voltaire seemed to have had at the time of the death of the latter. They were fermenting in men's minds, and it needed only just such social and political stresses as the coming of the atomic mechanisms brought about, to thrust them forward abruptly into crude and startling realisation.

Section 5

Frederick Barnet's Wander Jahre is one of those autobiographical novels that were popular throughout the third and fourth decades of the twentieth century. It was published in 1970, and one must understand Wander Jahre rather in a spiritual and intellectual than in a literal sense. It is indeed an allusive title, carrying the world back to the Wilhelm Meister of Goethe, a century and a half earlier.

Its author, Frederick Barnet, gives a minute and curious history of his life and ideas between his nineteenth and his twenty-third birthdays. He was neither a very original nor a very brilliant man, but he had a trick of circumstantial writing; and though no authentic portrait was to survive for the information of posterity, he betrays by a score of casual phrases that he was short, sturdy, inclined to be plump, with a 'rather blobby' face, and full, rather projecting blue eyes. He belonged until the financial debacle of 1956 to the class of fairly prosperous people, he was a student in London, he aeroplaned to Italy and then had

a pedestrian tour from Genoa to Rome, crossed in the air to Greece and Egypt, and came back over the Balkans and Germany. His family fortunes, which were largely invested in bank shares, coal mines, and house property, were destroyed. Reduced to penury, he sought to earn a living. He suffered great hardship, and was then caught up by the war and had a year of soldiering, first as an officer in the English infantry and then in the army of pacification. His book tells all these things so simply and at the same time so explicitly, that it remains, as it were, an eye by which future generations may have at least one man's vision of the years of the Great Change.

And he was, he tells us, a 'Modern State' man 'by instinct' from the beginning. He breathed in these ideas in the class rooms and laboratories of the Carnegie Foundation school that rose, a long and delicately beautiful facade, along the South Bank of the Thames opposite the ancient dignity of Somerset House. Such thought was interwoven with the very fabric of that pioneer school in the educational renascence in England. After the customary exchange years in Heidelberg and Paris, he went into the classical school of London University. The older so-called 'classical' education of the British pedagogues, probably the most paralysing, ineffective, and foolish routine that ever wasted human life, had already been swept out of this great institution in favour of modern methods; and he learnt Greek and Latin as well as he had learnt German, Spanish, and French, so that he wrote and spoke them freely, and used them with an unconscious ease in his study of the foundation civilisations of the European system to which they were the key. (This

change was still so recent that he mentions an encounter in Rome with an 'Oxford don' who 'spoke Latin with a Wiltshire accent and manifest discomfort, wrote Greek letters with his tongue out, and seemed to think a Greek sentence a charm when it was a quotation and an impropriety when it wasn't.')

Barnet saw the last days of the coal-steam engines upon the English railways and the gradual cleansing of the London atmosphere as the smoke-creating sea-coal fires gave place to electric heating. The building of laboratories at Kensington was still in progress, and he took part in the students' riots that delayed the removal of the Albert Memorial. He carried a banner with 'We like Funny Statuary' on one side, and on the other 'Seats and Canopies for Statues, Why should our Great Departed Stand in the Rain?' He learnt the rather athletic aviation of those days at the University grounds at Sydenham, and he was fined for flying over the new prison for political libellers at Wormwood Scrubs, 'in a manner calculated to exhilarate the prisoners while at exercise.' That was the time of the attempted suppression of any criticism of the public judicature and the place was crowded with journalists who had ventured to call attention to the dementia of Chief Justice Abrahams. Barnet was not a very good aviator, he confesses he was always a little afraid of his machine--there was excellent reason for every one to be afraid of those clumsy early types--and he never attempted steep descents or very high flying. He also, he records, owned one of those oil-driven motor-bicycles whose clumsy complexity and extravagant filthiness still astonish the visitors to the museum of machinery at

South Kensington. He mentions running over a dog and complains of the ruinous price of 'spatchcocks' in Surrey. 'Spatchcocks,' it seems, was a slang term for crushed hens.

He passed the examinations necessary to reduce his military service to a minimum, and his want of any special scientific or technical qualification and a certain precocious corpulence that handicapped his aviation indicated the infantry of the line as his sphere of training. That was the most generalised form of soldiering. The development of the theory of war had been for some decades but little assisted by any practical experience. What fighting had occurred in recent years, had been fighting in minor or uncivilised states, with peasant or barbaric soldiers and with but a small equipment of modern contrivances, and the great powers of the world were content for the most part to maintain armies that sustained in their broader organisation the traditions of the European wars of thirty and forty years before. There was the infantry arm to which Barnet belonged and which was supposed to fight on foot with a rifle and be the main portion of the army. There were cavalry forces (horse soldiers), having a ratio to the infantry that had been determined by the experiences of the Franco-German war in 1871. There was also artillery, and for some unexplained reason much of this was still drawn by horses; though there were also in all the European armies a small number of motor-guns with wheels so constructed that they could go over broken ground. In addition there were large developments of the engineering arm, concerned with motor transport, motor-bicycle scouting, aviation, and the like.

No first-class intelligence had been sought to specialise in and work out the problem of warfare with the new appliances and under modern conditions, but a succession of able jurists, Lord Haldane, Chief Justice Briggs, and that very able King's Counsel, Philbrick, had reconstructed the army frequently and thoroughly and placed it at last, with the adoption of national service, upon a footing that would have seemed very imposing to the public of 1900. At any moment the British Empire could now put a million and a quarter of arguable soldiers upon the board of Welt-Politik. The traditions of Japan and the Central European armies were more princely and less forensic; the Chinese still refused resolutely to become a military power, and maintained a small standing army upon the American model that was said, so far as it went, to be highly efficient, and Russia, secured by a stringent administration against internal criticism, had scarcely altered the design of a uniform or the organisation of a battery since the opening decades of the century. Barnet's opinion of his military training was manifestly a poor one, his Modern State ideas disposed him to regard it as a bore, and his common sense condemned it as useless. Moreover, his habit of body made him peculiarly sensitive to the fatigues and hardships of service.

'For three days in succession we turned out before dawn and--for no earthly reason--without breakfast,' he relates. 'I suppose that is to show us that when the Day comes the first thing will be to get us thoroughly uncomfortable and rotten. We then proceeded to Kriegspiel,

according to the mysterious ideas of those in authority over us. On the last day we spent three hours under a hot if early sun getting over eight miles of country to a point we could have reached in a motor omnibus in nine minutes and a half--I did it the next day in that--and then we made a massed attack upon entrenchments that could have shot us all about three times over if only the umpires had let them. Then came a little bayonet exercise, but I doubt if I am sufficiently a barbarian to stick this long knife into anything living. Anyhow in this battle I shouldn't have had a chance. Assuming that by some miracle I hadn't been shot three times over, I was far too hot and blown when I got up to the entrenchments even to lift my beastly rifle. It was those others would have begun the sticking....

'For a time we were watched by two hostile aeroplanes; then our own came up and asked them not to, and--the practice of aerial warfare still being unknown--they very politely desisted and went away and did dives and circles of the most charming description over the Fox Hills.'

All Barnet's accounts of his military training were written in the same half-contemptuous, half-protesting tone. He was of opinion that his chances of participating in any real warfare were very slight, and that, if after all he should participate, it was bound to be so entirely different from these peace manoeuvres that his only course as a rational man would be to keep as observantly out of danger as he could until he had learnt the tricks and possibilities of the new conditions. He states this quite frankly. Never was a man more free from sham heroics.

Section 6

Barnet welcomed the appearance of the atomic engine with the zest of masculine youth in all fresh machinery, and it is evident that for some time he failed to connect the rush of wonderful new possibilities with the financial troubles of his family. 'I knew my father was worried,' he admits. That cast the smallest of shadows upon his delighted departure for Italy and Greece and Egypt with three congenial companions in one of the new atomic models. They flew over the Channel Isles and Touraine, he mentions, and circled about Mont Blanc--'These new helicopters, we found,' he notes, 'had abolished all the danger and strain of sudden drops to which the old-time aeroplanes were liable'--and then he went on by way of Pisa, Paestum, Ghirgenti, and Athens, to visit the pyramids by moonlight, flying thither from Cairo, and to follow the Nile up to Khartum. Even by later standards, it must have been a very gleeful holiday for a young man, and it made the tragedy of his next experiences all the darker. A week after his return his father, who was a widower, announced himself ruined, and committed suicide by means of an unscheduled opiate.

At one blow Barnet found himself flung out of the possessing, spending, enjoying class to which he belonged, penniless and with no calling by which he could earn a living. He tried teaching and some journalism, but in a little while he found himself on the underside of a world in which he had always reckoned to live in the sunshine. For innumerable men such

an experience has meant mental and spiritual destruction, but Barnet, in spite of his bodily gravitation towards comfort, showed himself when put to the test, of the more valiant modern quality. He was saturated with the creative stoicism of the heroic times that were already dawning, and he took his difficulties and discomforts stoutly as his appointed material, and turned them to expression.

Indeed, in his book, he thanks fortune for them. 'I might have lived and died,' he says, 'in that neat fool's paradise of secure lavishness above there. I might never have realised the gathering wrath and sorrow of the ousted and exasperated masses. In the days of my own prosperity things had seemed to me to be very well arranged.' Now from his new point of view he was to find they were not arranged at all; that government was a compromise of aggressions and powers and lassitudes, and law a convention between interests, and that the poor and the weak, though they had many negligent masters, had few friends.

'I had thought things were looked after,' he wrote. 'It was with a kind of amazement that I tramped the roads and starved--and found that no one in particular cared.'

He was turned out of his lodging in a backward part of London.

'It was with difficulty I persuaded my landlady--she was a needy widow, poor soul, and I was already in her debt--to keep an old box for me in which I had locked a few letters, keepsakes, and the like. She lived in

great fear of the Public Health and Morality Inspectors, because she was sometimes too poor to pay the customary tip to them, but at last she consented to put it in a dark tiled place under the stairs, and then I went forth into the world--to seek first the luck of a meal and then shelter.'

He wandered down into the thronging gayer parts of London, in which a year or so ago he had been numbered among the spenders.

London, under the Visible Smoke Law, by which any production of visible smoke with or without excuse was punishable by a fine, had already ceased to be the sombre smoke-darkened city of the Victorian time; it had been, and indeed was, constantly being rebuilt, and its main streets were already beginning to take on those characteristics that distinguished them throughout the latter half of the twentieth century. The insanitary horse and the plebeian bicycle had been banished from the roadway, which was now of a resilient, glass-like surface, spotlessly clean; and the foot passenger was restricted to a narrow vestige of the ancient footpath on either side of the track and forbidden at the risk of a fine, if he survived, to cross the roadway. People descended from their automobiles upon this pavement and went through the lower shops to the lifts and stairs to the new ways for pedestrians, the Rows, that ran along the front of the houses at the level of the first story, and, being joined by frequent bridges, gave the newer parts of London a curiously Venetian appearance. In some streets there were upper and even third-story Rows. For most of the day and all night the shop windows

were lit by electric light, and many establishments had made, as it were, canals of public footpaths through their premises in order to increase their window space.

Barnet made his way along this night-scene rather apprehensively since the police had power to challenge and demand the Labour Card of any indigent-looking person, and if the record failed to show he was in employment, dismiss him to the traffic pavement below.

But there was still enough of his former gentility about Barnet's appearance and bearing to protect him from this; the police, too, had other things to think of that night, and he was permitted to reach the galleries about Leicester Square--that great focus of London life and pleasure.

He gives a vivid description of the scene that evening. In the centre was a garden raised on arches lit by festoons of lights and connected with the Rows by eight graceful bridges, beneath which hummed the interlacing streams of motor traffic, pulsating as the current alternated between east and west and north and south. Above rose great frontages of intricate rather than beautiful reinforced porcelain, studded with lights, barred by bold illuminated advertisements, and glowing with reflections. There were the two historical music halls of this place, the Shakespeare Memorial Theatre, in which the municipal players revolved perpetually through the cycle of Shakespeare's plays, and four other great houses of refreshment and entertainment whose

pinnacles streamed up into the blue obscurity of the night. The south side of the square was in dark contrast to the others; it was still being rebuilt, and a lattice of steel bars surmounted by the frozen gestures of monstrous cranes rose over the excavated sites of vanished Victorian buildings.

This framework attracted Barnet's attention for a time to the exclusion of other interests. It was absolutely still, it had a dead rigidity, a stricken inaction, no one was at work upon it and all its machinery was quiet; but the constructor's globes of vacuum light filled its every interstice with a quivering green moonshine and showed alert but motionless--soldier sentinels!

He asked a passing stroller, and was told that the men had struck that day against the use of an atomic riveter that would have doubled the individual efficiency and halved the number of steel workers.

'Shouldn't wonder if they didn't get chucking bombs,' said Barnet's informant, hovered for a moment, and then went on his way to the Alhambra music hall.

Barnet became aware of an excitement in the newspaper kiosks at the corners of the square. Something very sensational had been flashed upon the transparencies. Forgetting for a moment his penniless condition, he made his way over a bridge to buy a paper, for in those days the papers, which were printed upon thin sheets of metallic foil, were sold at

determinate points by specially licensed purveyors. Half over, he stopped short at a change in the traffic below; and was astonished to see that the police signals were restricting vehicles to the half roadway. When presently he got within sight of the transparencies that had replaced the placards of Victorian times, he read of the Great March of the Unemployed that was already in progress through the West End, and so without expenditure he was able to understand what was coming.

He watched, and his book describes this procession which the police had considered it unwise to prevent and which had been spontaneously organised in imitation of the Unemployed Processions of earlier times. He had expected a mob but there was a kind of sullen discipline about the procession when at last it arrived. What seemed for a time an unending column of men marched wearily, marched with a kind of implacable futility, along the roadway underneath him. He was, he says, moved to join them, but instead he remained watching. They were a dingy, shabby, ineffective-looking multitude, for the most part incapable of any but obsolete and superseded types of labour. They bore a few banners with the time-honoured inscription: 'Work, not Charity,' but otherwise their ranks were unadorned.

They were not singing, they were not even talking, there was nothing truculent nor aggressive in their bearing, they had no definite objective they were just marching and showing themselves in the more prosperous parts of London. They were a sample of that great mass of unskilled cheap labour which the now still cheaper mechanical powers had

superseded for evermore. They were being 'scrapped'--as horses had been 'scrapped.'

Barnet leant over the parapet watching them, his mind quickened by his own precarious condition. For a time, he says, he felt nothing but despair at the sight; what should be done, what could be done for this gathering surplus of humanity? They were so manifestly useless--and incapable--and pitiful.

What were they asking for?

They had been overtaken by unexpected things. Nobody had foreseen----

It flashed suddenly into his mind just what the multitudinous shambling enigma below meant. It was an appeal against the unexpected, an appeal to those others who, more fortunate, seemed wiser and more powerful, for something--for INTELLIGENCE. This mute mass, weary footed, rank following rank, protested its persuasion that some of these others must have foreseen these dislocations--that anyhow they ought to have foreseen--and arranged.

That was what this crowd of wreckage was feeling and seeking so dumbly to assert.

'Things came to me like the turning on of a light in a darkened room,' he says. 'These men were praying to their fellow creatures as once they

prayed to God! The last thing that men will realise about anything is that it is inanimate. They had transferred their animation to mankind. They still believed there was intelligence somewhere, even if it was careless or malignant.... It had only to be aroused to be conscience-stricken, to be moved to exertion.... And I saw, too, that as yet THERE WAS NO SUCH INTELLIGENCE. The world waits for intelligence. That intelligence has still to be made, that will for good and order has still to be gathered together, out of scraps of impulse and wandering seeds of benevolence and whatever is fine and creative in our souls, into a common purpose. It's something still to come....'

It is characteristic of the widening thought of the time that this not very heroical young man who, in any previous age, might well have been altogether occupied with the problem of his own individual necessities, should be able to stand there and generalise about the needs of the race.

But upon all the stresses and conflicts of that chaotic time there was already dawning the light of a new era. The spirit of humanity was escaping, even then it was escaping, from its extreme imprisonment in individuals. Salvation from the bitter intensities of self, which had been a conscious religious end for thousands of years, which men had sought in mortifications, in the wilderness, in meditation, and by innumerable strange paths, was coming at last with the effect of naturalness into the talk of men, into the books they read, into their unconscious gestures, into their newspapers and daily purposes and

everyday acts. The broad horizons, the magic possibilities that the spirit of the seeker had revealed to them, were charming them out of those ancient and instinctive preoccupations from which the very threat of hell and torment had failed to drive them. And this young man, homeless and without provision even for the immediate hours, in the presence of social disorganisation, distress, and perplexity, in a blazing wilderness of thoughtless pleasure that blotted out the stars, could think as he tells us he thought.

'I saw life plain,' he wrote. 'I saw the gigantic task before us, and the very splendour of its intricate and immeasurable difficulty filled me with exaltation. I saw that we have still to discover government, that we have still to discover education, which is the necessary reciprocal of government, and that all this--in which my own little speck of a life was so manifestly overwhelmed--this and its yesterday in Greece and Rome and Egypt were nothing, the mere first dust swirls of the beginning, the movements and dim murmurings of a sleeper who will presently be awake....'

Section 7

And then the story tells, with an engaging simplicity, of his descent from this ecstatic vision of reality.

'Presently I found myself again, and I was beginning to feel cold and a little hungry.'

He bethought himself of the John Burns Relief Offices which stood upon the Thames Embankment. He made his way through the galleries of the booksellers and the National Gallery, which had been open continuously day and night to all decently dressed people now for more than twelve years, and across the rose-gardens of Trafalgar Square, and so by the hotel colonnade to the Embankment. He had long known of these admirable offices, which had swept the last beggars and matchsellers and all the casual indigent from the London streets, and he believed that he would, as a matter of course, be able to procure a ticket for food and a night's lodgings and some indication of possible employment.

But he had not reckoned upon the new labour troubles, and when he got to the Embankment he found the offices hopelessly congested and besieged by a large and rather unruly crowd. He hovered for a time on the outskirts of the waiting multitude, perplexed and dismayed, and then he became aware of a movement, a purposive trickling away of people, up through the arches of the great buildings that had arisen when all the railway stations were removed to the south side of the river, and so to the covered ways of the Strand. And here, in the open glare of midnight, he found unemployed men begging, and not only begging, but begging with astonishing assurance, from the people who were emerging from the small theatres and other such places of entertainment which abounded in that thoroughfare.

This was an altogether unexampled thing. There had been no begging in

London streets for a quarter of a century. But that night the police were evidently unwilling or unable to cope with the destitute who were invading those well-kept quarters of the town. They had become stonily blind to anything but manifest disorder.

Barnet walked through the crowd, unable to bring himself to ask; indeed his bearing must have been more valiant than his circumstances, for twice he says that he was begged from. Near the Trafalgar Square gardens, a girl with reddened cheeks and blackened eyebrows, who was walking alone, spoke to him with a peculiar friendliness.

'I'm starving,' he said to her abruptly.

'Oh! poor dear!' she said; and with the impulsive generosity of her kind, glanced round and slipped a silver piece into his hand....

It was a gift that, in spite of the precedent of De Quincey, might under the repressive social legislation of those times, have brought Barnet within reach of the prison lash. But he took it, he confesses, and thanked her as well as he was able, and went off very gladly to get food.

Section 8

A day or so later--and again his freedom to go as he pleased upon the roads may be taken as a mark of increasing social disorganisation and

police embarrassment--he wandered out into the open country. He speaks of the roads of that plutocratic age as being 'fenced with barbed wire against unpropertied people,' of the high-walled gardens and trespass warnings that kept him to the dusty narrowness of the public ways. In the air, happy rich people were flying, heedless of the misfortunes about them, as he himself had been flying two years ago, and along the road swept the new traffic, light and swift and wonderful. One was rarely out of earshot of its whistles and gongs and siren cries even in the field paths or over the open downs. The officials of the labour exchanges were everywhere overworked and infuriated, the casual wards were so crowded that the surplus wanderers slept in ranks under sheds or in the open air, and since giving to wayfarers had been made a punishable offence there was no longer friendship or help for a man from the rare foot passenger or the wayside cottage....

'I wasn't angry,' said Barnet. 'I saw an immense selfishness, a monstrous disregard for anything but pleasure and possession in all those people above us, but I saw how inevitable that was, how certainly if the richest had changed places with the poorest, that things would have been the same. What else can happen when men use science and every new thing that science gives, and all their available intelligence and energy to manufacture wealth and appliances, and leave government and education to the rustling traditions of hundreds of years ago? Those traditions come from the dark ages when there was really not enough for every one, when life was a fierce struggle that might be masked but could not be escaped. Of course this famine grabbing, this fierce

dispossession of others, must follow from such a disharmony between material and training. Of course the rich were vulgar and the poor grew savage and every added power that came to men made the rich richer and the poor less necessary and less free. The men I met in the casual wards and the relief offices were all smouldering for revolt, talking of justice and injustice and revenge. I saw no hope in that talk, nor in anything but patience....'

But he did not mean a passive patience. He meant that the method of social reconstruction was still a riddle, that no effectual rearrangement was possible until this riddle in all its tangled aspects was solved. 'I tried to talk to those discontented men,' he wrote, 'but it was hard for them to see things as I saw them. When I talked of patience and the larger scheme, they answered, "But then we shall all be dead"--and I could not make them see, what is so simple to my own mind, that that did not affect the question. Men who think in lifetimes are of no use to statesmanship.'

He does not seem to have seen a newspaper during those wanderings, and a chance sight of the transparency of a kiosk in the market-place at Bishop's Stortford announcing a 'Grave International Situation' did not excite him very much. There had been so many grave international situations in recent years.

This time it was talk of the Central European powers suddenly attacking the Slav Confederacy, with France and England going to the help of the

Slavs.

But the next night he found a tolerable meal awaiting the vagrants in the casual ward, and learnt from the workhouse master that all serviceable trained men were to be sent back on the morrow to their mobilisation centres. The country was on the eve of war. He was to go back through London to Surrey. His first feeling, he records, was one of extreme relief that his days of 'hopeless battering at the underside of civilisation' were at an end. Here was something definite to do, something definitely provided for. But his relief was greatly modified when he found that the mobilisation arrangements had been made so hastily and carelessly that for nearly thirty-six hours at the improvised depot at Epsom he got nothing either to eat or to drink but a cup of cold water. The depot was absolutely unprovisioned, and no one was free to leave it.