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THE
TRIUMPHANT MACHINE
(A Study of Machine Civilisation)

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THE TRIUMPHANT MACHINE

(A Study of Machine Civilisation)

By
R. M. FOX

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How came this pigmy rabble spun,
After the gods and kings of old,
Upon a tapestry begun
With threads of silver and of gold.

We now are servile to the mean
Who once were slaves unto the proud.
No lordlier life on earth has been
Although the heart be lowlier bowed,
Is there an iron age to be
With beauty but a memory.

A. E.

PREFACE

FROM the standpoint of a man who spent many years of his life as apprentice and journeyman in an engineering workshop, Mr. Fox attempts in this little book to discuss what is, perhaps, the fundamental problem of our civilisation. Anthropologists have occasionally studied the misery which overcomes Africans when they are driven into the mechanical routine of labour on a plantation. Hard work does not injure them, if it is spasmodic, but the monotony of a mechanical round destroys their happiness, and weakens their resistance to disease. One asks, after reading this book, whether in reality the instincts of the white worker of the West are better adapted to the life which the machine age has imposed upon him. The vertiginous pace of mechanical progress seems to have outrun the capacity of man to adapt himself to the new environment which industry has created.

Mr. Fox has the gift of enabling those of us who have escaped this experience in our own lives, to understand what a boy of the working-class feels as he is "broken in" to the discipline of the factory. If he had been content to record his own impressions, one might have supposed that minds less sensitive than his might pass through the ordeal without injury. But his

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observation of the effects of a brutalising routine on the average worker, who has no gift of language to make his loss articulate, is even more convincing than his own personal record. One sees the machine at work, numbing and limiting its human servant.

Here is a problem which lies outside the customary preoccupations of politics. A fairer distribution of wealth would affect it only indirectly. Even the transference of ownership which Socialists demand, from the private capitalist to the community, would not in itself be a solution. In the state workshop the question would still confront us whether the man must adapt himself to the machine, or the machine to the man. We all have our moments of radical despair, in which we are ready to join Tolstoy in returning to the life of the primitive village, and admire the courage of Gandhi, who would tolerate no machine more elaborate than an Indian spindle.

Mr. Fox has been modest in his search for solutions, and one asks at the end whether his suggestions are more than mitigations. The naive belief in the discoveries of Taylorism is already weakening. Intelligent managers realise that the *bonus* system brings with it a moral blight. Factories have been known in which the workers may sing at their work. It is even conceivable that architects may come to design them with some regard, not merely for the comfort, but also for the æsthetic susceptibilities

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of the workers. But Mr. Fox lays stress chiefly on frequent changes in the workers' allotted tasks, a plan which would relieve monotony while it would add to the workers' understanding of the whole process of manufacture. The second essential is that he should at the start be helped in industrial schools to take an intelligent interest in this process. If at the same time the works council should embolden him to feel himself a power in the factory, it is conceivable that, even when he cannot escape repetition work, his attitude to the machine may change, until he thinks of himself rather as its lord than its slave. This may be a sanguine reckoning, but all the reforms which Mr. Fox advocates are good in themselves, and in some degree must have this tendency. The Russians, it is true, have reconciled themselves to machinery with fantastic enthusiasm. But that, they might retort, is because their working-class has conquered and possessed the factory after a stubborn struggle. The machines, at least, are its own. But I confess that this Russian exultation in the power of the machine leaves me sceptical. Mechanism is a novel toy in Russia. Men want it because they do not know it. The root question remains, whether the instincts which interminable centuries of a more various and natural life have bred in us, can in any measurable time adapt themselves to the manufacture of "standardised parts."

H. N. BRAILSFORD.

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CHAPTER I

MASS PRODUCTION

MUCH that is written concerning industry, especially in relation to the workers' lives, completely fails in its purpose because of the ignorance of the "experts" who have had no practical experience of the difficulties and problems of which they write.

To one who has spent his early years in the workshop, many of the schemes propounded for the curing of industrial ills seem fantastic and absurd. The best of these treat the worker as a piece of machinery whose well-being may be regulated on mechanical lines. Given "rest pauses," "vocational study," adequate wages, and decent working conditions, the experts assume that the industrial worker will shine with contentment as an engine glistens when the cleaner has finished oiling it.

Yet if these experts only used their powers of introspection they would realise that such treatment could never satisfy the worker. Their

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error usually lies in treating the workers as a race apart, or as a class of subhuman beings who are not moved by the same needs and desires as they are.

Most healthy, normal people, especially in their youth, demand beauty, colour, and adventure from life. But for the young worker these are generally shut out. Life takes a drab hue from the very beginning. His glimpses of the poetry of existence are caught through the drifting factory smoke ; he is deafened by noise, choked by dust and grime, tired out by strain. No wonder that, finding life a prison, he becomes embittered and feels that he has bartered his youth for a mess of very bad pottage.

I am convinced that at the source, where boys stream into the factory eager for the life of men, ready to spend themselves in pleasing if only they are given the chance, the wastage begins. Their youthful ambitions, which might be made a great driving force, soon disappear and they become dull machine tenders without initiative or joy. Guidance, selection, interest, variety are what they need ; indifference, mass treatment, monotony are meted out to them. When the factory has killed ambition it is little use trying to resurrect youth. In his most impressionable years the attitude of the young worker towards industry is being formed, and if it becomes one of hostility and distaste then the seeds of strikes, industrial trouble and individual unhappiness are being sown.

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One of the tragedies of the working class boy is that he has no youth. He is just beginning to wake to the wonder and mystery of life when—hey presto!—his childhood is over. He exchanges his schoolboy knickers for trousers and takes his place among men. In a few more years he would have been able to choose for himself, but too often he loses his hold upon life and ceases to have any aim or direction. Some fare better but many go through this process and become drudges, while the experts in workshop management, the brains of the “planning department,” do nothing to help them plan or manage their lives.

I write from an intimate knowledge of modern machine industry with its mass production, its speeding up and general soullessness. When I entered industry I found it a nightmare of time-recording clocks which rang with a sharp staccato clang when the cards were stamped and of numbered brass tool checks which impressed upon me that my place in the universe was C. 702, a contention which I instinctively disputed. No one had any individuality at all. The machine took hold of me with its iron fingers and worked me to the shape required. Every second had to be accounted for. As I “clocked off” one job, I “clocked on” to the next. In the department where I worked galleries rose in tiers, and at each side, from gallery to gallery, stretched a set of rails along which lumbered huge cranes which picked up solid masses of

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metal from the iron tables of the machines and dropped them elsewhere. Everything conspired to dwarf the individual ; men looked like hurrying gnomes amid the whirring wheels, while the metal groaned and shrieked in every key as it was cut and shaped. The whole works was one great machine, of which we were parts that could easily be scrapped and replaced. This drove some of the men to drink ; some it made " work beasts " who worked and slept resignedly ; others it gave the unreasoned pessimism of the " hump." All suffered, even those who accepted it most placidly. For to be geared to a machine is not a human life.

Attention was lavished on the stresses and strains of machinery and metal, but the more delicate mechanism of human nerves and sinews—not to speak of human souls—was ignored. But I write unjustly. We were not ignored. On the contrary a gentleman with a stop-watch frequently stood over a man, timing an operation and calculating how few motions were required to complete a given task. When the time was fixed each worker had to do the job in that time and in that way. If more " bonus " could be earned than was anticipated, the operation was slightly altered and the time reduced. But not many errors were made on this side. I cannot really complain that we were not studied. But the purpose of all the study was the work, not the man. No one dreamed of considering the effect on his well-being and development.

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Taylor, of Bethlehem Steel Works fame, has declared that in order to get pig iron loaded most efficiently it is necessary to get men as near like oxen as possible. But men do not grow so ; they have to be made. An important part of scientific management is this scientific degradation of men. Sometimes the human material is intractable. For instance, Muscio, an Italian investigator, tells how experiments were made with girls, to discover the length of thread which would save time and energy in arm-stretching or threading. It was found that each girl could manage better with a different length. But if this discovery had not possessed a commercial bearing it would have been ignored.

Apart from industry more allowance is made for human differences. Graham Wallas tells us that the wise coach will allow for slight individual peculiarities in a rowing eight, rather than insist on absolute uniformity of stroke, because to conquer such a peculiarity may take more nervous energy than it is worth. Mental and physical differences get recognition as we get further from industry, but the "feed and speed" man knows nothing of human complexity. The demands of personality are hidden by the demand for output.

The need for beauty in industrial life is far more pressing than many realise. Sometimes I have felt a joy amounting almost to ecstasy as I walked home in the trembling haze which comes just before twilight when the houses, the

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people and the trees seem unreal, and the setting sun fills the sky with flaming colour. How inexpressibly sweet life was—outside the factory!

At dusk I stumbled through the mist and mud of the marshy country where the "cheap factory sites" were situated. These cool, calm evenings after the feverish turmoil of the day were very pleasant. But I lived a life of strain and brooding anxiety. Music saddened me, for as I listened there rose before me the crude conditions which I had left and to which I must return. Everything beautiful intensified my discontent.

And on afternoons when I had holiday I walked through Hyde Park and watched the people clustering round the bandstand, the ragged children paddling in the Serpentine, the happy couples sunning themselves on the grass, the park orators calling upon the people to rise, and the people looking on with placid content. How little they wanted to make them happy! I passed through the Marble Arch and turned down Oxford Street by the huge, square-cut temple of Commerce which Selfridge has raised to the sky, past the electric standards with their globes of light and the smooth shining streets of the West End. Beauty rises everywhere if we allow it. But we grimly bar it from industry and from the mean streets where the workers spend most of their lives. Then, as I walked on, the bitterness of ugly drudgery mellowed into the joy of living; for when one is young and eager and has a little leisure, life is a wonderful thing.

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I came from the factory strong with the strength of an unwilling victim pushing against the ugly actualities of the world and feeling all natural beauty on my side. There were moments in these golden hours when the bars of the factory prison lost their grimness, and even industry, which I had come to loathe, was touched with the spirit of beauty.

Going home from the works each evening I passed a flaring gin palace at the corner of a dingy street where I often waited for a car. As I stood with my bundle of greasy blue overalls under my arm and looked at its veined marble columns, its arched windows of frosted glass, with their fanciful designs lit by branching lights, I felt the strength of its appeal. The buzz of eager voices swelled for a moment as the swing-doors were pushed open and another slipped in to the throng. It had the curious effect of a shout of welcome suddenly dying down to a murmur as the door swung softly back. Here the men met without a sense of struggle in a pleasant atmosphere of good fellowship. The drink stimulated their flagging energy, infused into their veins the sensation of living in a world of comfort. Their starved emotions sucked in the warmth and friendliness eagerly. But when the lights began to wink dolefully and to disappear, the swing-doors opened and disgorged a tattered collection of men who stumbled foolishly and made desperate efforts by loud, unmeaning laughter, noisy talk and snatches of

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song, to clutch at their vanishing dream of colour and joy.

I listened to the revolutionary agitators with their Socialist propaganda. It brought excitement and colour into my life and expressed all my vague feelings of exasperation and revolt. I hated the factory. The clang and clatter of the machines beat into my brain, till they seemed to be gloating over those who were chained to them. One afternoon the machines pounded out a chant which I wrote down in the evening after work :

This is the Machine Age—We are the Machines.

As you enter the factory you can hear us roar—a hungry, menacing, threatening, exultant roar. We demand food. We must be fed. We live on the bodies, blood, bones and sinews of men, women and children. They come into the factories in eager shoals. They pass through and go out crushed and broken. Ever they come, flowing in like the waves of the sea, to dash themselves to pieces on the rocks and breakwaters. We like the young men best. They are so strong. They think they can dominate us. They hurl themselves upon us. They pull our levers ; push, twist and turn our cogs, clutches and gears. They are brimful of energy, running over with vitality, and they empty themselves.

We laugh! We know who are the masters.

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They never stop to think who worked the machines before they came or who will work us when they are gone. Some of those who have gone before are in their graves; others are the starving and shivering flotsam and jetsam of the great cities. Others, again, are in the workhouse. They do not know. They are filled with the pride of youth. Sometimes when they get too proud we turn and rend them. But we prefer to work slowly, to suck their blood daily, to keep them bound to us and crush them gradually.

We are iron and steel. We are heartless, brainless, nerveless, compassionless. We bite into metal. We bite into humanity. None can withstand us. We love the delicate human organisms who offer themselves for sacrifice. They have no chance against us, these things of blood and bone, and nerve and tissue. We love the frail, bloodless girls who faint by our side; we can see the life oozing out of them as they tend us.

We chuckle with harsh, recurring, iron chuckles.

We love the boys from school who walk innocently into our maw. They come in bright-eyed, rosy-checked, and full of ambition. Within a year they are dull-eyed, grey-complexioned and low-spirited. Their feet sag, and their shoulders droop. And they stay with us. They cannot escape. We have every ounce of strength till we use them up. Then

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we cast them off. You can hear us exult in a high crescendo which rises above our dull monotonous roar. Men are our slaves, our fodder. They are chained to us. We use them up.

They come and they go. They live and they die. But we go on; we endure. We roar on exultantly.

This is the Machine Age. We are the Machines.

Day after day the factory worker is awakened by his alarm clock or, as I often was, by the thumping on the partition wall of a friendly next-door neighbour. He hurries out in the grey dawn in response to the factory hooter. Once inside, high-speed production compels him to keep all his attention fixed on his work because if he allows his mind to wander for a moment he finds he cannot maintain the pace demanded. Interesting work may absorb attention, but repetition work cannot be interesting. It is only tolerable if one can think of something else. To be kept at a point of extreme tension on petty tasks and not to be able to relax for a moment means exhaustion and frayed nerves—the worker is like a dog at the end of a short chain, confined to a tiny radius and always being pulled up with a jerk. I believe this evil is felt acutely by many. It is galling to have to fix eyes, mind and muscle for hours on work that is not really sufficient to occupy the mind. A

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reaction is bound to come if the brain is not dulled. Lurid and sentimental films, melodrama, jazz, dancing; anything which has colour, romance, sensuousness, passion or excitement is demanded.

Dinner hour at the factory is not a joy. Mass feeding and mass production are conjoined and neither is specially inviting. Besides being a necessity, meals should have an æsthetic value. Otherwise the feeding of grimy men is on the same level as the feeding of furnaces. The daily round went on punctuated with sleep times and meal times. Men jostled each other and entered frowsy cookshops from which came a warm, greasy odour of decaying vegetables and kippers. They crowded together, hurriedly eating their midday meal in a heated, steam-laden atmosphere without room for their elbows and amid an incessant clatter and chatter. Later on factory hooters, bells and whistles began to sound and the cookshops emptied. One was a dark hole where a parrot cage hung in the gloom, its occupant giving every now and then a wild, mournful shriek. A cheap, nasal gramophone which was always rasping out the latest comic songs added to the other attractions. With the factory, the combination was irresistible. In the circumstances I preferred a coffee stall or a book and sandwiches in an adjoining field.

At some firms attempts have been made to improve matters by the provision of works' canteens—clean, spacious and bright with flowers.

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But the workers' view of such things is always coloured by their feeling towards the management. Once hostility has been aroused, the workers extend that feeling to everything connected with their employment. They do not want to eat off their employer's plates or to play in his sports club. Their freedom and their lives as men appear to begin only when they have escaped altogether from the influence of the firm. It is little use adding ameliorative influences to the business if they do not penetrate the works and affect the general spirit. Autocratic benevolence rouses hostility. Often benefits are merely an additional irritation. "I give the employer my work time," says the worker. "Why should he want to encroach on my leisure!"

The centre of the problem remains the workshop. If antagonism, fear, suspicion and hatred could be eliminated and replaced by confidence, co-operation and a healthy relation towards work, the benefits would be incalculable. With all the drawbacks of machine production a measure of harmony is not impossible. Sometimes when the great arc lamps near the rafters glow, while the black shining snakes of belts slide swiftly over the pulleys and the little electric lights twinkle in and out of the huge machines, throwing curious ever-changing shadows, we seem to be part of a glorious adventure. The shop becomes warm and friendly, the workers bend over their tasks busily, the

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jangling and discord of the day vanishes, a sense of solidarity in effort grows and the workers are happy at their work. It is all too rarely that this spirit of satisfaction in work well done settles over the workshop, but it hovers near enough to invite pursuit.

I remember the first time I went to the foundry to fetch castings. At the entrance I was directed to where I could find the man in charge, Mr. Clarke. I went into a long gloomy shop, like a huge shed, with a sandy floor, and saw a knot of men at one end. A man came towards me along the narrow pathway. I saw he carried two pails from which came a red glow. A clamour of yells rose from the men at the other end and I skipped out of the way confusedly. The pails were filled with molten metal. I spoke to Mr. Clarke who answered in a surly indifferent tone and bade me follow him. We passed an elderly man with spectacles and a short grey beard who looked benign as he stooped over his work. He was painting huge iron girders with a dull red paint. As we passed, Mr. Clarke, who with his burly form and drooping moustache, was fierce and mastiff-like, rasped out :

“Late again this morning, were you ?”

The old man looked up startled.

“No!” he quavered. “I was in early.”

“Oh! and this is what you’ve done all the morning! I’ll soon see about that!” And the mastiff-man strode on, leaving the old workman

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utterly miserable, hurrying over his work with trembling fingers.

I thought to myself: "He works hard. He looks as if he has always done so, and yet this is how he is treated!" I was on the threshold; he was near the end of his work-worn life. I had matter for immature reflection here. Since then I have seen many men tremble before foremen and have seen advertisements for men "able to hustle the work through the shops." In human terms, the kind of bullying I saw here is what they mean.

Soon I was given a job as a driller at double my previous money. But it was very monotonous. I used to look for the long shadows to come in the evenings, for this meant I would soon be free. I still worked hard, but my early enthusiasm was gone. Besides, I learned nothing fresh. The man I helped was afraid I would get his job. He did his special bits of work stealthily so that I could not see him. I was not interested in him or his work, so I obliged him with my indifference. During the three years we worked together we hardly spoke. There was no question of training. I was simply required to drill holes in metal. I was feeling a man now. I had a big machine to mind and lots of levers to pull. I looked indulgently upon the lads of fourteen who, in the early morning before the whistle went to begin work, sat on upturned pails and boxes in front of the stove, huddled together, their arms round each other for warmth. They

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shouted, laughed and swore terrifically. They thought they were men too. They had soon forgotten their scanty schooling and the more obscene their talk, the manlier they felt. It was the only standard that anyone troubled to set them. My work was now more monotonous than ever. Speed was the only consideration. But I resented having to fix all my attention and nerve force on this drudgery and, in spite of my efforts, my mind would wander. I usually brought a few slices of bread and butter for lunch but I rarely had time to swallow these. I hung on to my machine handle grimly and saved every second I could. The bread was much appreciated by the children who ran about the factory gate crying "Any left-off bread, sir?" as we went home.

Next I went to a smoky industrial town—a product of mass production. Everything centred round the huge engineering plant. As the firm dilated or contracted the prosperity of the town blossomed or withered. Inhabitants dated their reminiscences from the time when the firm did this or that. They spoke of the "slaughter" when the firm was slack and men were discharged, as others speak of years of national disaster. In the morning all the men had to be out at the same time and the clatter of feet along the street was like an army out of step.

I lodged in a house which accommodated half-a-dozen other workers. A day or two after my

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arrival I asked a fellow lodger to show me round the town. We went together down the narrow turning leading to the crooked High Street. Here, by a dismal lamp, my companion halted.

"This is it," he said.

"Well, go on," I urged. "Show it to me."

"This is all there is," he persisted. His sole idea of recreation was to stand at the corner for the rest of the evening.

I asked if there were a library. There was. We went to it. We were in luck. A lecture was being given. It took place in a big underground cellar which would accommodate about a hundred and fifty people, some forty were present. A gentleman spoke about canals in Mars. He had a blackboard and chalk and grew very excited over it. He was proving with great wealth of aggressive detail that there were or were not canals in Mars. The audience sat in that queer, depressed, intent silence characteristic of English people who take part in such ceremonies. Then another gentleman who had been shuffling round uneasily during the lecture, stood up and moved an effusive vote of thanks, taking almost as long as the lecturer himself. This was the only piece of citizen culture I ever heard of in the town and unfortunately it was not connected with our planet.

I stayed here during the week and went home to London at week-ends. Going away was a relief for the murk of the town became unbearable. I could not read or study in my lodgings which were

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small and crowded. The dingy, ill-lighted place seemed to combine the disadvantages of country and town.

It was a slag heap of humanity. At my lodgings, Potts, a little man with goggling watery eyes, whose wife was in the workhouse, and Jackson, who became reconciled to his wife at intervals—at this particular period he had left her at Newcastle—set the tone. But I was glad to get in here because the only other lodging I sampled was a place, lit by a dim oil lamp, where the lodgers sat with their knees bunched up to the table while I tried to read by the sickly light.

The chief recreation was drink. The town reeked with public houses. Harsh, unlovely conditions resulted in a pitiful ugliness of life, with surly men snapping at each other or—what seemed still more pitiful to me—acquiescing dully in those conditions. I came back to my lodgings late one Sunday night and when I struck a match in the kitchen, I saw one man sprawling like a log on the floor. Another sat stupified with his head and arms resting on the table, while an overturned bottle of beer had stained the cloth. It was a scene Zolaesque in its unrelieved sordidness. This was the way they spent their week-end rest from toil. At work they found nothing to uplift them, to give them dignity or a sense of individual worth. Away from work there was no appeal to civic pride or urge to attainment in any field. No one cared what they did with their lives. If they gave up working

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their machines, others would take their places. They felt this dumbly; and, though not consciously, their beings resented it. Their drinking was the inarticulate protest they made against their conditions.

Inside the workshop, rate-fixers were constantly at work seeking to reduce the times allowed for various operations. From my work-book I take the following details which are typical:

“Plate Supply pad (drilling operation). Time allowed, $13\frac{1}{2}$ minutes.”

“Compression plates (drilling operation). Time allowed, $7\frac{1}{2}$ minutes.”

These I put down as a check for the future, but the rate-fixer could often reduce the times when the operation was slightly varied. Constant haggling in this “minute war” went on every day all over the shop. This haggling over half minutes is a lowering of human dignity.

I remember one angry dispute between a workman and a rate-fixer. Both lost their tempers and began shouting abuse. The manager came striding down the shop and said to the workman: “Put on your coat and get out of this!”

The man went. But the shop-steward chalked up in big, bold letters on the back of a cupboard, the words—“*Meeting, 5.30.*”

At 5.30 the men stopped their machines and poured out past the foreman and the shop officials, who gazed after them in bewilderment.

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Both sides, management and men, drew apart into separate hostile camps. There was an expectant hush. The men trooped out in a body. They were supposed to stay and work overtime but they went out, slowly, ostentatiously, truculently. Outside they gathered round a cart, and a trade union organiser rose to address them. They were in a fighting mood; they wanted trouble.

He spoke quietly and easily, counselling moderation. All around stood the workmen with grimy hands and faces, the whites of their eyes gleaming strangely in the dark. His speech did not please them, and they shuffled uneasily; but they were not skilled in the use of words so he went on unchallenged. Gradually, against their inclination he wore down their pugnacious spirit. One could see them wavering as he spoke and see the light of conflict die down in their eyes. When he had finished they dispersed almost silently. A few groups alone remained, sullenly voicing their discontent.

Many of the men would have welcomed a strike. They cared little about the particular issue. They were sick of the monotony. Individually, they often went "on the booze"; collectively, they wanted to strike. Work pressed too heavily on their lives; they wanted some change, any change, no matter what it might be.

A word on the factory psychology. The industrial workers are hard, narrow, logical, irreligious, uncultured, keen on material things,

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indifferent to spiritual values. Life expresses itself to them as a conflict of power. Life is Power. They are down because the other side have the power to keep them down. Right and wrong appear as feeble abstractions which do not apply. This they feel not as a matter of opinion or politics, but of life. With this hard, logical machine view, the factory workers meet the middle class. It talks of the place of ideals in life, has notions of religion and is obviously loose somewhere. Yet those who most vehemently affirm that there is no place for sentiment in the factory worker's life are often strongly moved by idealistic, unselfish, revolutionary appeals.

During a railway strike I heard a railway man telling a crowded meeting about a friend of his who complained that the men cared nothing for the small shareholders.

"I asked him," said the railwayman, "if he remembered twenty years ago when railwaymen were among the sweated workers?"

"I know things were bad," answered the shareholder.

"Well," continued the railwayman. "Then we had your sympathy. Now you have ours!"

The audience roared their approval and their point of view represents the general drift of working class feeling.

Industrial experience makes for hardness. It is utility and not sentimental or humane considerations which determine from week to week whether the manual worker is to survive. A

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changing method of production condemns workers to misery just as surely to-day as machinery destroyed the handloom weavers in the past.

Not many years ago in the fitting shop of a motor factory, skilled men built engines for motor cycles. Each man made all the adjustments needed, timed the engine, and passed it on to the testing shed as a finished product. Many of the men were middle-aged and had families dependent on them. Suddenly, without warning, they were replaced by youths who worked under skilled direction. Lads of eighteen and nineteen, called improvers—because, I suppose, they never had a chance to improve—were brought in and the work was subdivided, each having a simple repetition process to do over and over again.

Production was cheapened but what of the human consequences? Skilled men were thrown on the streets. In a few years when their successors wanted men's wages they too would be turned adrift without any training to fit them for the future. Work which had been interesting, which gave variety of occupation and brought out something of the craftsman spirit, was turned into drudgery which could only dull and stunt the minds of those engaged in it. Men, who had been contented, useful citizens, were made hard and bitter.

How long will this actual and potential human wreckage continue to pile up before society takes

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notice of it. Middle-aged skilled engineers find that they are not wanted just at a time when experience has fitted them to do their best work. But when anyone doubts whether such a state of affairs is rational, people murmur something about industrial progress and hurry by. We shall have to choose whether we will sacrifice some of that efficiency which turns out cheap shoddy goods by using up men and women in factories or whether we shall make for all-round human efficiency. Changes such as I have instanced are miserably inefficient for human purposes and society, as well as the actual sufferers, must bear the cost in increased pauperism, unemployment, misery and crime.

Industrial problems are only considered from a pecuniary point of view. The question asked is: How cheaply can goods be made? The instinct of acquisitiveness becomes more and more the sole stimulus of effort in the workshop. But I have often found that the generosity and friendliness of workers triumphs over the selfishness induced by the system. Men give time and energy in showing newcomers how to proceed even though this means losing money and possibly endangering their own positions. I set this against other occasions when I have seen them peering from behind their machines waiting for a new man to make a mistake and so remove a competitor from their midsts. Men do not take kindly to unrelieved selfishness and are better than the system warrants. Yet only the motive

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of gain can prompt a man when his work has been made completely uninteresting.

Shorter hours have been suggested to counteract the evils of routine. But this takes little account of the harmful reactions which are carried over from industry into leisure, resulting in a "feed and speed" outlook on life. The assumption is that work is bad and must be cut down as much as possible. Yet if a daily dose of poison, however small, is taken, the worker can hardly escape unharmed. We cannot go back to handicraft, but even in modern industry it is not essential that men should be chained to one machine all the time. It is easy for initiative to be destroyed and many of those who lack confidence for new ventures owe this to being thrust into a rut early in life.

For the worker who wishes to study or develop in any field, high-speed production is a great drawback. Often it leaves him like a sucked orange. He is quite unable to concentrate on books or study. After being riveted to a machine all day he feels an uncontrollable desire to seek any sort of excitement or change on his release. Mental mastication becomes as distasteful to him as a good square meal to a chronic dyspeptic.

"I can't ever settle to read!" said a man, who was voicing a general workshop complaint. "Sometimes I try. But after two or three minutes I sling the book to the other end of the room and go off out."

He could not concentrate because his nature,

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repressed all day, demanded some outlet, some excitement that would compensate him for the daily grind. These conditions in the workshop give rise to irritation, maladjustment and to disputes which in themselves intensify the difficulty of creating a good working atmosphere and so prevent the worker from taking an interest in his work. Mutual suspicion, continual drive, and threats of the "sack" degrade work and make it irksome even when it might be pleasant. A state of nervous fatigue and irritability arises especially when the management is overbearing and this results in a useless drain of energy. Before industry can be placed on a sound psychological basis all this must be tackled.

CHAPTER II

THE PSYCHOLOGY OF THE WORKSHOP

It seems necessary at the present stage for those who combine practical and theoretical knowledge of industry to act as liaison officers between the purely professorial element and the rule-of-thumb engineering experts. We must relate the facts of experience to modern thought. Approaching the subject in this spirit I find it a matter of satisfaction that Professor C. S. Myers, in his book *Industrial Psychology in Great Britain* should have conceded so much to those who have opposed earlier systems of speeding up and mass production carried out by crude "efficiency experts" on purely mechanical lines. All who have felt the intolerable irksomeness of these systems have been under the imputation of building up a purely emotional, sentimental case against efficiency. But here we have a leading expert in industrial psychology admitting—even asserting—that the workshop case against the famous Taylor system and its many imitators, is based on scientific grounds.

The main principles of the Taylor system were few and simple. It took the fastest worker and induced him to set the pace for the rest. It

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aimed at separating all thought and initiative from the workshop. The expert taught the workman a series of rapid motions which he had to reproduce without variation. All personal considerations and differences of adjustment were ignored. The system worked on precisely the same principle as is used in gearing up a row of similar machines to the speed required. Besides removing all thinking to the planning department there were eight bosses—the Gang Boss, the Speed Boss, etc. It was supposed to do away with collective bargaining as both the task and the payment of each individual worker was scientifically worked out. The measure of its psychological insight is evident from its attitude towards collective action which is fostered by the whole factory process. But its strongest point is its insistence on uniformity.

Every workman knows that even machines, without consciousness or feeling, must be humoured. A man who is familiar with a certain machine can get it to go and do good work while another man may have nothing but trouble. Every machine has its strong and weak points and responds to the coaxing of the man who understands it. How much more then is a rigid uniformity impossible for human beings? Varying conditions of health and industrial equipment must also be considered. The bitterness and wretchedness which have resulted from a refusal to recognise this can hardly be exaggerated. It is significant that Professor Myers maintains

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that there is no "One Best Way" of doing things for this is the corner stone of the school of efficiency engineers headed by Taylor and Gilbreth.

It is now being established that no two people can be trained to act in precisely the same way without waste of energy. Quickest movements are often the most fatiguing. Sharp angular movements often do not allow for recovery of energy and rhythm of stroke. Each man must perfect himself in his own way and not have someone else's perfection thrust on him. The same controversy has been fought out in relation to society. The Utilitarian school urged that society could be arranged on a basis of mechanical principles rigidly and universally applied. Burke advanced the far sounder principle of growth. Just as many of our social customs persist, though apparently they have no reasonable basis, because they fit in with human nature, so in industry, many of the methods which make the efficiency engineer furious have a similar justification.

The National Institute of Industrial Psychology, we are told, believes in teaching the operative to avoid bad habits of work and then leaving him to adjust himself to his task. This elimination of bad habits, of course, may be carried out as rigidly as in the older methods that are condemned. Where the Taylor expert instructed the worker what to do, the new industrial psychologist tells him what to avoid and many

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workshop managers, I am afraid, are not likely to discriminate or to accept the reservations urged by Professor Myers. Much depends on who controls the workshop. However, the new industrial psychology confirms the instinctive opposition of the worker to dehumanising methods. So far from the mass of men having a sloppy preference for inefficiency, it is true, as our expert says, "If only the mental attitude in a factory be right, the workers will set their own standard of output and as the majority of mankind when placed under just conditions, is honest and honourable, that standard will prove in the long run to be satisfactory."

Drabness, overstrain, ugliness, lack of interesting work, an inferior status—these, connected and interdependent as they are, form the indictment brought against the workshop to-day. We have only to look at the dull hopeless faces of the "hands" in any predominantly industrial town to see that they suffer from monotony. A measure of monotony is involved in the lives of most people, but we should be concerned to lessen it. In considering monotonous work we must distinguish between different types of mind. Some have no objection to monotony; others turn to monotonous jobs as a relief after highly-concentrated mental effort. I do not assert that conscious revolt against monotony is general. This would be to repeat the blunder of those who want to impose a uniform standard for everyone. But many who have reconciled themselves to it

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have done so at the expense of possibilities of achievement.

To some the whole problem appears to be one of giving men the opportunity of doing work for which they are fitted—to see that round pegs are not inserted in square holes. But if most of the pegs are round while the holes are nearly all square, there is a case for altering the shape of the holes. In other words the jobs should be made to fit the people instead of the people being made to suit the jobs.

It is not only a question of fitting. Superficially, at any rate, the trouble is that men fit too well. This seems right unless we consider the needs of personality. An overdose of monotony is harmful except perhaps for the dullest of men. William James, the American psychologist, has written that habit is the great fly-wheel of society which keeps everything running. But the capacity to go forward, to be curious about new ways, is equally useful and human. If routine kills interest in the new and strange then the human being suffers as a flower which is deprived of the sun. It may survive but it will be stunted and sickly and that is what happens to many men, mentally and physically, to-day. At the outset it is necessary to understand that what is needed is not the alteration of small details but a whole new attitude to industry and life, placing the emphasis on the last instead of the first. This will necessarily involve many changes in the conduct and direction of industry.

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Fortunately the advocates of variety in work have practical examples to point to. In Henry Ford's Detroit Works there is a Work Change Bureau. It is a line of development possible in many industries and the fact that it is associated with the name of Henry Ford indicates that it is commercially sound. Although I do not for a moment accept the view that every improvement in industry must be judged from the standpoint of increased production yet even by such a criterion this change may be justified. Advocates of specialisation and repetition argue that for men to change their work would introduce an element of confusion and clumsiness into production. Good organisation should cope with that problem. I have known men in the workshop to plan out their work so that when they are tired of one operation they can turn to another and the variety often renews their vigour and leads to an extra spurt. The same sort of relief is gained in this way as by "rest pauses." It may even be that just as old fashioned employers argued that long hours were best until finally routed by figures showing increased production with shorter hours so an efficiently arranged variety may not only fail to injure production but may actually increase it. There is no adequate reason why young workers entering engineering factories should not gain an all-round experience at different kinds of machines instead of being bound to one. This would be of immense

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value to them and help to keep their minds fresh, alert and vigorous.

That some would like to intensify monotony of work is evident from the Memorandum, published in 1918, by the British Health of Munition Workers Committee which states (p. 120) :

“ If the workers would consent to it, it would be a good plan to induce temporary deafness by plugging the ears and so shut out the noise of the machinery. . . It would be of value to shut out the sight of surrounding objects by separating the lathes or other machines from one another by partitions. The worker left to himself without sounds or sights to distract his attention could then concentrate himself entirely on the work in hand. . . However these conditions are mentioned only as an ideal which should be aimed at wherever possible.”

In contrast with this amiable idealism are the results of an inquiry by a member of the Institute of Welfare Workers given in *Welfare Work* (March, 1926). Several firms were approached and in one case only was it found that a definite rule existed against singing and talking at work. A big engineering firm reported : “ So far from hindering work we find the jollity and good spirits engendered are a distinct aid to production.” The statement from another firm reads : “ My own opinion is that singing tends to increase output.” A similar report comes from a chocolate factory. Another speaking of war-time strain, says :

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“. . . it seems to be the usual thing to sing when working overtime as the workers find it helps the work on and cheers them up. And indeed singing to the rhythmic beat of machinery sounds very well. I have vivid recollections of ‘When Irish Eyes are Smiling’ on night duty during the war. . . . I do think that something to occupy the mind when doing such work is far more likely to help it than to hinder it.”

My own experience when I have heard a burst of song from a row of workers, with the engine pounding and the machines rattling, is that it helps to relieve the tedium and to get the work done with a swing. There is probably more singing during overtime because then the regular factory discipline is often relaxed. But a rigid silence rule is rarely enforced. The signatories of the memorandum I have quoted would probably like to go back to the time mentioned by Dame Adelaide Anderson in her book *Women in the Factory*, when fines were imposed for laughing or even sneezing at work. As late as 1921, we learn from this book, the appeal of two girls who were fined for singing and dancing in the workroom, *during the dinner hour*, was dismissed by the High Courts. Petty fines—which should be quite illegal—are still a feature of some workshops. Luckily the complete dehumanisation of workmen as suggested in the memorandum can, failing the workers’ consent, only be thought of “as an ideal.”

Ugliness is a factor in industrial life mentioned

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more rarely than monotony. Yet it is very important. Industrial workers become so inured to it that they are supposed not to mind. Probably not many do take conscious notice of the hideous rawness of industrial towns and plants. But surely a workroom which is an eyesore intensifies monotony and weariness. During the air-raids, in the early days of the war, I was working in a shop, the windows of which were daubed with a dingy drab-coloured paint to prevent the light shining through. The result was that even when the sun shone the room was dismal. We worked as if in a horribly depressing fog every day, and this did not make for a better spirit in the workshop. Much of the ugliness has not even national emergency to excuse it.

It should be possible to strike a practical balance between William Morris's dream of an ideal factory and the ugliness of those in which thousands of men have to spend most of their waking hours. Except in a very few instances there is no attempt to give these places the simple beauty of fitness. Some possess a dignity as of a Brangwyn drawing but others are of ramshackle corrugated iron or are concrete horrors. Why should not architects plan factories with the same care for beauty that they bestow on garden cities, churches or even banks. Why should not the situation as well as the conditions of the factory be the subject of factory legislation. I have known factories built on cheap marshy sites where overalls left on the bench overnight

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were wringing wet next morning. Frequently, the works' entrance is only reached after floundering down a muddy path churned into a quagmire by many feet. Yet the office entrance is usually well-kept. Greater attention should also be paid to facilities for cleanliness in the workshop. Workmen are often only able to give their hands a quick rub with dirty cotton waste when the whistle blows or to wash them in dirty oil. The arrangements in a prison workroom, basins, taps, etc., could be taken as a model, for very rarely is the ordinary workshop so well equipped.

Many who are distressed at the workers' insensitiveness to beauty do not consider how he has been broken into ugliness in his daily life, nor what a black misery the factory and the factory town is to the industrial worker who loves beauty. But the "practical" man dismisses this with a shrug. What connection has production with beauty? he asks scornfully. What, indeed! But if the question is put as to whether men live, develop and work best in conditions of beauty or ugliness, the answer is clear. Something in the normal mind demands that the eyes should rest with satisfaction on at least some of the familiar features of everyday life. If this is not possible there is a lack of health, of balance, of joy. If considered only as a neutralising factor in connection with much that is unavoidably drab in industry, beauty would repay attention. But taken from the narrowest business standpoint one would imagine that anything which di-

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minished discontent and listless "fed-up-edness" would be welcomed. From a wider perspective, ugliness in industry must be condemned as a degradation of human life.

Besides variety and beauty the question of status is also a pivotal point. As a counteraction to the narrowing tendency of routine it is essential that the worker's status in industry should be raised. The factory "hand" is a modern Prometheus bound fast to the iron machine, a prey to forces that are daily attacking his vitality and undermining his self-respect. With the growth of huge industrial plants the individual becomes more insignificant and is lost amid those massive forces which he manipulates or which manipulate him. His helplessness and unimportance are intensified by the ever-growing departmentalism of work. As the machines are constructed to turn out a succession of parts, each exactly like the others, so the operative is confined to his petty task and standard men as well as standard goods are produced. The invariable comment when the leaving-off hooter sounds is, "That's the one I've been waiting for all day!" And in the morning when the starting-signal is given they mutter, "Roll on the second one!" They look forward every day to the end of so many hours of life. Such an attitude towards work cannot embody the final wisdom of the ages.

Humanity is always responsive to words, and one has only to speak of "Efficiency" and "Pro-

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gress" to win assent. But it is all a question of the direction in which progress is made and the purpose of the efficiency. We can make cheap mouse-traps, but in doing so we trap men like mice. We have wonderful machines that go with clockwork precision and we have clockwork men to mind them. Since the psychologists have busied themselves in sorting out instincts and labelling such complexities of being as do not elude them, it is small wonder that we are discovering that personality gets little chance of healthy development in industry. Many of these scientific investigators have helped to intensify the problem for all their thought has been given to piling up the burden and when men have flared out in revolt against such treatment we have been asked to execrate them as villainous opponents of industrial progress. Now at last industrial psychologists are telling us that people are quite right to object to joyless drudgery. It seems like Satan rebuking sin, but it is only science bowing to commonsense.

In the workshop the workman has a craving to be on a human footing. It is difficult in these days of mechanical production to satisfy that craving, but it is worth while attempting to do so. Rigid upholders of managerial rights refuse to see that the more the status of the worker is depressed and he is made a being apart, the more they drive him to lose all interest in the work. The sound psychological plan is to enlist his co-operation and this, by giving him a larger

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orbit of interests, helps to correct the narrow routine of factory life. To gain satisfaction the workman requires expression for his personality in industry. But while in handicraft, many instincts, including the instinct of workmanship, could be brought into play, to-day, machine production makes for a very limited and one-sided expression. We have to correct industrial shortcomings with anything that will give opportunity for the working out of those instinctive tendencies which crave an outlet and, not finding one, make men warped and miserable. We must infuse into that environment, by means of beauty, variety, improved status, those elements that are needed and which the worker lacks.

CHAPTER III

TESTING, TRAINING AND TIMING

Most of those who enter industry have no choice of occupation. They go in where they can. If they are unsuitable for the work they have to leave it perhaps after weeks or months of wretchedness which give them little confidence to try anything else. Even when they are able to choose, the school-leaving age does not permit them to choose very wisely. They have to go through the clumsy sifting process of trial and error.

Intelligence and vocational tests which may assist young workers to avoid becoming industrial misfits are consequently of great interest. If the vocational tests are to be of service, the test conditions must bring into play mental and physical qualities in exactly the same way as when the actual work is being done. Otherwise the danger is that by ignoring some factor or combination of factors the tests may actually keep out of an industry many who would be fit for it. Observation from the workman's side has filled me with a deep distrust of the official's capacity to understand how the workman feels in relation to his work or to the official and his

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tests. Sometimes it is only necessary for such an omniscient official to appear in a workshop to spoil the whole working atmosphere. But he goes away cheerfully convinced after an hour or two's poking round that he understands all about normal working conditions. The idea that manual workers cannot be treated as sticks or stones, or automatic machines, never penetrates his scientific cranium.

Apart from testing qualities in combination, various qualities required may be tested separately and the total result calculated at the end. In general, the first way seems the surer test, for it more nearly reproduces the actual conditions of work. Some tests, however, are more concerned with physical fitness than vocational aptitude in the strictest sense and here the testing of one particular quality is useful, as for instance, in the colour blindness test for seamanship. Experiments made in typewriting tests, covering association, reaction time, etc., have been checked by efficiency shown at the actual work. It is claimed that by this method a number of typists can be got together at once, equal in potential efficiency to those who have been sifted through a period of three months by the old system of trial and error. An elaborate artificial test has been worked out in connection with tram driving. A lever controls the movements of a tiny car, and coloured lights are switched on to represent various traffic difficulties. The driver is expected to respond to these warnings quickly

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by means of the controlling lever. Whether such a test reproduces the actual difficulties of tram driving and tests the necessary qualities is very doubtful.

Apart from the test itself, questions of temperament are bound to enter and to upset calculations. Many who through nervousness are likely to do badly at tests might do well at the actual work. Some cannot bear to work under direct supervision but this sensitiveness may not impair their general efficiency. Just as in ordinary examinations—some are good examinees, others bad. But as a test of ability it is now recognised that examinations are defective.

This objection is very serious for it may mean that an ambitious boy or girl, nervous through temperament or over-anxiety, may be kept out of an occupation for which he or she is really fitted. Also as in the case of the Taylor scientific management system, considerations of health and day-to-day capacity are apparently ignored. Added to this we have the problem of the tester. Many people who "handle" labour develop an extraordinary insensitiveness. Just as the worst teacher—the man who regards his pupils as so much "material" and has no personal interest in them—is quite unfit to deal with a developing mind, in the same way the vocational tester, may be equally deficient in sympathy and understanding. Temperamentally he may jar on the youthful applicant. Unless there is some infallible way of testing the tester, the drawbacks of

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the tests are greatly increased. It may be objected that the results of the tests will demonstrate in themselves the fitness or otherwise of the applicant. But the trouble with all these mechanical tests is that they do not and cannot record intimate personal facts—facts of health, of temperament, the subtle differences between people. How would a test bring out the relative value as workers of two people, one who learns very slowly but thoroughly, and another who learns quickly and superficially. Probably the first would be disqualified and the second would pass. Many of the men who have succeeded in a chosen field of art, have been in despair during the early mechanical stages and have been told by well-meaning friends—amateur testers—that they could never succeed. If these friends had been in positions of authority, especially if they could have accumulated a heap of charts and appliances and looked wise in the midst of them, they might have prevented many gifted artists from developing their talents.

Tests may be used to limit the opportunities and scope of the rising worker, to push him into specialised work for which the expert on more or less doubtful grounds, considers him fitted. Even to have his name down at a Labour Exchange as a particular kind of worker tends to stamp him in that occupation and to force him to keep to it. With a catalogue of qualities and aptitudes attached to his person this restriction is likely to be intensified. A bad examinee would

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have a poor chance to show what he could do at the work he wanted if he were ticketed for something else. These tests may easily become the vehicle for increasing over-specialisation.

The workman is interested in preventing himself or his children being forced into work for which they are unsuited. But the idea of these tests is not primarily to help the worker. By means of them he may be drafted into an occupation that is distasteful to him or one in which there is little possibility of his making much headway.

In an article on vocational tests in the *Journal of the National Institute of Industrial Psychology* (July, 1926), we are told :

“A problem that sometimes arises is to decide if a capacity should be tested which is desirable for the higher branches of the work, although not necessary for the initial stages. This depends largely on the proportion of entrants that are promoted to the higher branches ; but speaking generally, unless this proportion is quite high, it seems unfair to debar a worker from entering the occupation because he cannot reach the top stages. Of all the girls who enter the dressmaking trade, for example, comparatively few ever become fitters and need to exercise taste. In selecting dressmaking learners, therefore, no test for æsthetic appreciation should be given, as most of the workers will never require this quality.”

The great objection to this is that some of those who are drafted in to lower branches of an occupa-

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tion may be quite suitable for the higher branches of another. If various tests were given at school this would probably be discovered. But when the tests are given at a factory where the only consideration is to fill up the machines with efficient workers, they may be kept all their lives at inferior work. Here is revealed the importance of tests being attached to schools and not to factories, for the school considers what is best for the scholar while the factory has no interest in the worker as an individual.

But the best way of preventing vocational misfits is probably to raise the school age and improve education so that the child on leaving school is in a better position to choose what he wants to do. If children are encouraged to think about their after-school life and opportunities are given them to follow their choice, this is better than all the vocational tests. To want to do something is a powerful incentive towards becoming efficient at it.

In any case, if tests are to be applied they should be carried out at school or in some way which makes it unmistakable that the tester is performing a social service. When these tests are adjuncts to the workshop, carried out for the employer and limited to his interests, the mental attitude of the worker—and of the tester—is quite different from what it would be if they were part of an educational system.

In the Journal already quoted we read :

“One of the examiner's chief duties in testing

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is to try to overcome the natural nervousness of the candidates, and a skilful examiner can make a test much less nerve-racking than an ordinary interview. The manner of approach is, of course, important; encouragement should be given, but never criticism or blame. Some firms do not use the alarming phrase 'psychological test' but substitute a more pleasant expression such as 'entrance interview' or 'technical trial.' The first test of any series should be sufficiently easy and interesting to restore self-confidence."

The writer of this article, Miss Winifred Spielman, has had much practical experience of tests so her opinion is valuable. But important though it is, the label attached to a test is surely of less significance than the conditions, mental and material, surrounding it. To be applying for work is in itself a "nervy" proceeding. When much depends on it, tests of any kind appear more terrifying. An examination carried out in a dentist's waiting-room would, I imagine, yield about the same percentage of satisfactory results. A whole host of imponderables combine to defeat the scientific accuracy of the tests. The composure and aplomb of the worker to whom the work means the difference between comfort and misery as compared with others to whom it is merely pin money or its masculine equivalent can hardly be gauged by a test. Nervousness under such conditions might easily make an intelligent worker appear stupid. On the other hand, if the

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tests are applied in schools, and no special anxiety attaches to the results, the scholars will be their normal selves. They will take these tests as lessons and if they are not good at one will cheerfully try another.

One firm, Messrs. Robinson and Sons, Ltd., of Chesterfield, manufacturers of surgical dressings and cardboard boxes used by chemists, run a factory preparatory school. The declared objects are :

1. To make the change from school life to factory life easier and pleasanter.

2. To find out the capabilities of the would-be worker, so that she can be given suitable work.

3. To give the worker sufficient knowledge about her future work to enable her to take an intelligent interest in it.

Girls of fourteen are taken from the school where they spend four weeks learning about their future work. During this time they are paid a beginner's wage of 6s. 6d. a week. The various processes in the works are demonstrated. In the school room a motor is in use and a mechanic explains the working of the machinery. Lectures are given and the girls write essays. Vocational tests are introduced and the learner gets a good idea of the kind of work she will have to do. As a means of connecting school with work this method is good. One girl, writing of her experience at the school, said : " I have learned the meaning of many phrases of which before I knew nothing." This is far more useful than

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may be imagined. Often those who enter industry do not know the names of tools, material or processes, and find that it is nobody's business to teach them. Even when he is willing the workman frequently does not make a good teacher. He has probably learned by rule of thumb methods. He knows how to do things but not how to explain them. He is impatient at those who have just entered the factory not being familiar with things common to him. He forgets how long it has taken him to learn. Maybe he is irritated at finding it so difficult to explain what he finds so easy to do. The plight of the sensitive youngster totally ignorant of workshop life, but anxious to please, under the charge of someone quite unable to teach, is one of the common miseries of our industrial maladjustment. Sometimes the beginner has not merely to contend with indifference, but with the jealous hostility of an adult. The factory school smooths the way for the young worker and is a decided advantage.

In this case there is no obligation for the girls to work for the firm at the end of the school period, or for the firm to employ them—a condition which in practice probably means that the firm picks out the quickest and best suited for the work.

When possible vocational guidance should be given through the schools for the interest of the scholar is alone considered and the psychological conditions are much better than when youngsters

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may be straining anxiously to enter a particular factory. There is, of course, the difficulty of equipment at ordinary schools. In Russia, experiments have been tried of taking children to factories to receive "factory lessons" in the same way that some London school-children are taken to the baths to learn swimming. It is said that both children and workmen benefit. But this necessitates greater State control over the factories than is the case here. From the Labour standpoint it is far better to have schools equipping the youngsters to find work which they desire than to have schools as an adjunct to the factory. Tests would then be used as a form of school guidance rather than as a method of factory selection. If from the beginning young people go into a certain industry because they choose it and because they have discovered they are good at the work, it will give them far more self-respect and self-reliance than if they are pulled in or pushed out after being passed through a gauge like pieces of wire whose thickness is being tested. These methods of guidance and selection are not mutually exclusive. Employers will continue to determine their own methods of selection. But the child has the right, after being given a good general education, to such vocational guidance as will enable him to make good use of his powers, otherwise society is wasting its human resources.

Apart from vocational tests, general intelligence tests are used in some of the schools. But even here the accuracy of the tests may be

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questioned. An American teacher tells how, when she was applying an intelligence test to her class, she asked :

“ What would you do if a fire broke out ? ”

One child answered : “ I do not know ! ”

She was given low marks.

But afterwards the teacher admitted that without knowing the extent, range and circumstances of the imaginary fire, she would have made exactly the same reply.

These tests have to do mainly with the threshold of the workshop. When the worker, tested or untested, steps over that threshold, he is immediately faced with new problems and difficulties. In the speed and efficiency tests carried out in the workshop all individual differences are ignored. It is not possible for a rate-fixer to consider the day-to-day obstacles. When a new operation is being timed everything is prepared for the occasion. Often several shop officials lend a hand. But to fix a time based on this for the normal carrying out of the operation is quite unfair. The tester comes to hold the view that the worker is his enemy, and must be beaten down. Every hour wrested from him is regarded as a victory for the rate-fixer and the firm. And the same spirit is found on the other side.

Tools may be blunted or broken after being used on high-speed work, the machine itself may not stand the continuous wear and tear, the metal may be hard and rock-like in some cases and

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soft in others. The operative may have to spend hours in getting together bolts, tackle, drawings and equipment. Usually this is not adequately allowed for, though in some cases "setting up" time may be granted.

It may help the reader to understand the process if I give an actual case of time allowance. I was for some time engaged on a series of operations for which the time allowed was two and a half hours. But the metal was so flint-like that the tool rubbed against it, grinding instead of cutting. This meant constant re-sharpening and broken tools, besides greatly lengthening the actual cutting time. By constant haggling with the rate-fixer I would get extra time allowed for this. Personally, I would have preferred to lose the time and the money rather than have to argue over the matter, but if one man gives way it is made the pretext of forcing the same conditions on others. Even in this case I knew from experience that though a special allowance was made, yet when someone else went on that particular job, nothing further would be heard of the customary allowance and he would be expected to work to the bare standard time laid down in the record.

When these timing arrangements are connected with bonus systems the results are still more deplorable. Then the atmosphere of the workshop is poisoned with greed and meanness. Men will hide equipment and tools, cover them up with sacking in out-of-the-way corners, stuff them

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into cupboards and lock them up so that they will be ready to hand when they need them, though other workmen may spend much time hunting round the shop. I have seen cupboards broken open, hanging in strips from the hinges in the hunt for this stuff. I have known a man to be charged at his trade union branch meeting with working against his fellow members' interests in this way. But the majority of cases are ignored. It is a recognised by-product of the modern timing system. Young workers are set against old, strong against weak, and the spirit of malignity spread through the shop. They are struggling for life and in the struggle men become primitive. The employer may not bother about this so long as it is confined to the workmen, but a shop in which there is no harmony, where sullenness, greed and aggression have developed, is, sooner or later, going to have its fill of industrial strife.

The struggle to reduce rates and to force them up is always going on in the factory. Eternal vigilance is the price of tolerable life. Men throw up organisations for defence. Union shops are closed to non-union men. If, by chance, one does get in, no one will show him how to go on. No one lends him tools. His own tools mysteriously disappear. No one helps him; everyone hinders. But from their standpoint the men are justified. They cannot afford to have non-unionists in the shop. Conditions for which they have fought and suffered are in jeopardy. No sentiment can be

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allowed. Non-union shops are hell. Each man works for himself and is suspicious of his neighbour. The management has them all at its mercy.

Timing and speeding have been pushed to their furthest limit. Often machines are driven at a higher speed than they are adapted for and the tools push rather than cut their way through the metal. It pays firms to batter machinery to pieces in this way. Gangs of millwrights are kept busy in the shops fixing up the machinery. Wear the machines out, get every ounce out of them quickly and then get new ones—this is the modern idea. And as workers are cheaper than machines they do not count the human cost.

Part of the process which I have seen is for the day foreman and the night foreman to come along the machine row together when the day shift begins. They count up what has been done during the night at each machine and go bullying and coaxing all down the row, trying to pit the day men against the night shift. At night when the shift changes over the process is repeated. Although the time cards are quite sufficient to keep the workers busy, these shop officials are skilled in all manner of rushing, bullying and "bouncing" an operative. Men are linked together with "original" and "supplementary" time cards on the same job and their bonus earnings depend on each other's efforts. In this way greed and dissension are fomented.

The full strain is reserved for old or delicate

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workers who have a horror of unemployment. They have to keep up and they daren't give in. It is the "work-beasts," lusty, vigorous men, who are content to work and sleep, that set the pace. In the Belgian Congo, fiercer tribes were used to coerce milder natives into gathering rubber. Torture and mutilation were the penalties inflicted by them on the others. The workshop method is not so openly brutal, the whip of unemployment and starvation is not seen, but the same principle is at work.

Mild, be-spectacled professors go on with their experiments in rapid production, turning an easy wheel which racks the industrial victims. Blinking benignly, they will tell you that things are not so bad. Recently a test has been devised to determine whether the first three-hour period of deep sleep increases the capacity for neuromuscular work more than a further consecutive period of "shallower" sleep! The worker has been thoroughly analysed at his work, inroads have been made on his leisure, but so far his sleep, except for excessive overtime, has not been attacked. Professor Patrick Geddes has in *Coal: Ways to Reconstruction* given us an idyllic picture of the mines when there will be "visits from a skilled physiologist with his fatigue recorder and as faithful in his way as a check-weigher can be in his." It is urged that these methods will not necessarily be used to the detriment of the worker. But so long as industry is organised on its present lines, experience

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proves that they will be used in this way. If some professor could only show how to make use of the workman's skin and bones after his vitality has been squeezed out, no doubt there would be a market for the idea.

Insofar as testing, timing and training are necessary they should be social services. But decent conditions of work, education and facilities for choice of occupation are most needed.

CHAPTER IV

THE HUMAN RECOIL

WE are all caught in the mechanism of a huge impersonal machine for which no one is responsible. Insecurity of life leads to an over-emphasis of the competitive, egotistic and self-regarding instincts and neglect of others. Sensitive men are more exposed to industrial stress because they are less phlegmatic than their fellows. Possibly they would tend to be unhappy under other conditions but modern industry, by ignoring their wants and crushing them into a standard mould intensifies their discontent. From this type are drawn the rebels who do not and will not fit into industrial life. They assert themselves and try to make the world fit itself to them. It is a psychological truth that aggressive over-assertion is the result of an imposed submission to degrading conditions which inevitably produce a reaction. The industrial rebel in his wildest and fiercest mood is kicking against being ironed out flat. He over-asserts his personality because of the assaults made upon it.

This over-development of pugnacity and egotism is bad if we look at it from the stand-

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point of individual character. But it may help to restore balance in a particular situation—to make up for lack of assertion in others. In the workshop we find men suffering from an “inferiority complex.” The feeling of insecurity and dependence, their dirty, greasy clothes and clumsy ways, the knowledge that they have little education and culture, their submission to bullying and a cringing acceptance of the status of undermen, lead some among them to develop in self-defence, a fierce individuality, a “superiority complex” just as far removed from the ideal of easy equality with other men which should be the normal equipment of unrepressed humanity. Industry has repressed the self-regarding sentiments of the mass. So it is easy to see how a rebel type is created. An exaggerated sense of personality is fostered by the very conditions which crush it out of others.

Students of psychology are familiar with problems of repression and distortion due to defects of environment. Workshop life imposes the harshest adjustments. Fit in or perish! is the workshop challenge to the industrial worker. Faced with such an alternative, it is not surprising that much of the fitting is about as comfortable as a Cinderella slipper on the foot of one of the ugly sisters. So we get a reaction against the regimentary process, a widespread feeling that industrial civilisation has grown too hard and mechanical for humanity to bear.

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Some get sufficient relaxation and variety, others seek sensationalism or suffer from apathy. Sensation attracts those of the unstable type—who are, according to some psychologists, on the increase. Machine workers who cannot stand the deadly colourless routine rush off every night to join the queues at pictures or music halls. They have a feverish dependence on external amusements to take them out of themselves. They say they want to see life—presumably instead of living it. After hard work, men naturally turn to pleasure. But instead of a natural oscillation between work and play, there is a period of fatiguing grind which demands fierce compensations. In this way the workers' whole life is unbalanced. He is like the traveller who is disappointed with every place because he cannot lose himself. Sensationalism defeats itself. Films become more lurid or inane, revues tickle the jaded palate by more daring and dreary indecencies. However he may strive to shut out the sight for a few hours, there will be printed before his tired eyes a grinding row of machines. Sunday papers containing crude recitals of domestic infidelities fail to keep him awake after his Sunday dinner. Nervous irritation, partly mental, partly physical, will not permit of wholesome interests. Sustained attention is impossible when mind and muscles are flaccid. Scientific management is a form of brutalisation which suppresses initiative and overworks certain nerves and muscles. Not only workmen are

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affected for, in our industrial age, the influence of machine production is felt everywhere.

The emotional side of revolutionary propaganda appeals to many whose lives are hard and bare. They construct a mental image of a beautiful society which eliminates all the evils of the struggling world they know. Out of the insecurity and sordidness comes a burning idealism which compensates them for all they miss in actual life. So the revolutionary flame is kept burning to satisfy an emotional need. The feeling generated to some extent cancels the week's grind and carries them through another week. For years they will respond eagerly to it without any question of getting anywhere or doing anything. They insert a "psychic distance" between this world of dream and the world of reality. They do not want to hear any practical proposals to bridge the gulf. They do not want details of programme. This would destroy their flawless vision and so cut off their way of escape. It is imperative for their emotional satisfaction that they must not mix this up with the conditions they detest. All this is the romantic side of revolutionary agitation with its waving of red flags, its colour and excitement. Just in so far as life is harsh and grinding, colourless and unlovely, this idealistic propaganda will make an irresistible appeal to workers of a certain temperament. If this flood of generous aspirations is ever harnessed to practical ends in the same way as the power of the workshop

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is used to drive the machines, there is no social reconstruction too big for it to bring about. Industrial conditions canalise energy along certain lines or give an impetus to idealistic reactions which are like puffs of steam from an engine. The danger is that futile indulgence in empty emotional agitations, whose only purpose is to let off steam, diverts energy from serious purposes. The process of mind-deadening which begins in the workshop revenges itself in a grand "flare-up" to compensate for unnatural conditions. No one who has been, as I have, in a workshop where that sense of exaltation, solidarity, power and expectancy called strike feeling has swept through the works can doubt that it is partly a psychological reaction against mechanical routine. There are many signs to-day that the utilitarian drive of the factory is—almost against their will—giving the workers' efforts a more practical turn.

In America where high speed production has developed to an even greater pitch than in England we can see evidences of that human recoil from industrial pressure. Extravagant waves of feeling sweep like wind across a cornfield. Mob emotion, mass hypnotism result in wild stampedes after the latest craze. Uniformity has become a religion—called Americanism—and all are expected to accept its standards. America is fortunate in possessing a painstaking social thinker such as Professor Thorstein Veblen, who has examined machine influence from a psycho-

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logical standpoint and has produced a whole new fascinating literature on the subject. In America there is no pre-industrial tradition to blur the impression, so we get a clear view of the results of a gigantic industrial civilisation. High speed industry, with its routine and monotony, catches huge sections of the population in its whirl and flings them off to gyrate like humming tops. In the music which they demand can be heard the beat of engines and the scream of steam whistles. The matter-of-factness induced by machine work is characteristic of America, but it requires as a complement, the syrupy sentiment, degenerating almost to idiocy, of the American film. Newspapers with half-column headlines and little else inflame the desire for sensation felt by jaded people jammed together round factory plants. Industrial disputes are fought out with incredible bitterness. Armies of gunmen, clubbing and shooting, dynamite, gas, destruction of property and life, have accompanied these disputes. Human nature contains high explosives which captains of industry handle carelessly, forgetting that explosions always bear some relation to preliminary pressure.

It is no accident that in America the Industrial Workers of the World (I.W.W.) reached the apex of revolutionary fervour. It organised migratory workers whose conditions of life were exceptionally hard. Yet around their camp fires in the jungles they sang their songs of revolt and talked inspiringly of that coming commonwealth

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of harmony and peace. They clung to this idea with the fervour of religious faith, many of them suffering and dying for it. Yet it remains true that there, as in England when Socialist ideas spread during the dock labourers' strike of 1889, this ideal commonwealth was primarily fashioned to satisfy an emotional need.

Fantasy-making is another form of escape from the irksome round. Daydreams may be indulged in at work unless speeding up and motion study, by increasing the tension, rob the worker of this relief. Romain Rolland in *Jean Christophe* notes this effect of modern industry :

“How many voyages of the mind can one make, standing up with wide-open eyes in the space of a second! Manual labour is fairly well suited to intermittent thought. The working man's mind would be hard put to it, without an effort of the will, to follow a closely-reasoned chain of argument, if he does manage to do so he is always certain to miss a link here and there ; but in the intervals of rhythmic movement, ideas crop up and mental images come floating to the surface ; the regular movements of the body send them flying upwards like sparks under the smith's bellows. The thought of the people! It is just smoke and fire, a shower of glittering sparks fading away, glowing, then fading once more. But sometimes a spark will be carried away by the wind to set fire to the dried forests and fat ricks of the upper classes.”

M. Rolland shows penetration here. The

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gorgeous daydream of the workshop, the snatches of philosophy, of romantic idealism—all these help to colour the grey factory life and are clutched at eagerly. But as the factory screw is tightened it cuts through the daydreams. No time or energy is left to construct castles in the air, there is no longer any barrier between the worker and the narrow ugliness of his life. As a result he may become inert, apathetic, empty, a dry husk of a man, working without interest and without hope. He may grow bitter and surly after the fashion of the cobbler in Maxim Gorky's *Orloff Couple* who vented his displeasure at the hardness of his life upon his wife.

As to drink, W. Trotter says in his *Herd Instinct* that while drunkenness is "almost universally regarded as either, on the one hand, a sin or a vice, or, on the other hand, as a disease, there can be little doubt that it is essentially a response to a psychological necessity. In the tragic conflict between what he has been taught to desire and what he is allowed to get, man has found in alcohol, as he has found in certain other drugs, a sinister but effective peacemaker, a means of securing for however short a time, some way out of the prison house of reality back to the Golden Age."

Jack London, in his autobiographical novel *Martin Eden*, speaking of the strain he endured as a sweated laundry worker, also stresses drink as an avenue of relief. Normally the worker should get sufficient stimulus from the life around

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him. But his instincts have been repressed and his emotions frayed to pieces in the tense yet uninteresting daily struggle.

The factory mould is remorseless. If the instincts and desires which cannot find expression within it are too strong to stand restraint the individual must break loose. If there is a strong pressure running counter to general human needs, turbulent mass movements will result. But his economic helplessness usually forces the worker to submit. Everything in his nature that cannot fit into the mould is either repressed or lopped off violently. Curiosity dies down in him, selfishness forms a hard crust over the generous springs of his nature. After this has gone on for some time he begins to measure everything in the world by workshop standards. His world comes to be bounded by the four walls of the factory. The walls are pushed back a little, but the same mechanical processes with which he is familiar are held to run through life. He ceases to struggle, submits, and shapes himself to the machine. So workshop realism is born, based on mechanical knowledge and habit—a realism which measures the universe with a foot-rule. Without knowledge of history or breadth of mind the worker feels the impetus of modern science—in its mechanical bearing—which has been applied to industry.

Romain Rolland's presentation of the thought of the people takes little account of recent industrial developments. It is more applicable

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to Chartist days than to our industrial era. In the early days of industry workers were in revolt against machine civilisation. When they recoil from factory pressure they are inconsequent, sporadic. Their protest is against discipline and regulation. But when they accept the machine world, they accept the machine logic with it.

The ramifications of factory influence, extending to social manners, customs, thought, makes it the greatest influence of our time. Whatever affects the workshop is bound to affect society. It is the centre of life for those masses who are moulded by machine production. Machine technology is re-shaping life and thought. Wonder, awe, curiosity, abstract reasoning, are suppressed when a man becomes a tiny fraction of a huge productive plant. The man with the hoe has given place to the man with the lever and considerations of mechanical utility are dominating his mind. Individuality means little to him when he is bought and used like the rest of the raw material required to enable the plant to function to its full capacity.

Idealism still flashes across his mental horizon as a strangely attractive contrast to his standards—which are matter-of-fact and utilitarian. The *ignis fatuus* of sensation dances fitfully over the rim of his ironbound world. But pressing, inculcating, moulding, there is always the machine logic which is the mental by-product of the factory. This is doubly attractive because it does not need much thinking out. Belts travel-

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ling round and round, machines chopping iron rods in regular lengths, the whole factory, including the workmen, organised to carry out certain functions, to achieve certain results. Given this, what more natural than that the workman should accept the universe as a bigger factory plant with evolution as the power house and driving wheel. He sees only the validity of those ideas which fit in with this mechanical "process view." There is the making of an iron dogmatism here—a dogmatism which can be and is being applied to the whole of life. It has a bearing on social thought, on religion, on politics, on literature, on history—on all those departments of human activity which are being crushed into the factory formula. If we look closely at any of those big modern conflicts in which tradition and environment clash, the marks of the iron factory teeth are plainly visible.

CHAPTER V

THE PROCESS VIEW

PROFESSOR THORSTEIN VEBLEN has attempted a fundamental examination of modern industry from a psychological angle. He has arrived at the conclusion that machine industry runs counter to those instinctive tendencies of mankind developed through past generations of non-industrial life. His conclusion is :

“Man by native endowment is best fitted to live under conditions of a moderately advanced savagery such as the machine technology will not permit. . . . Neither in the physical conditions which it imposes nor in its habitual ways of observation and reasoning is the machine age adapted to the current native endowment of race.”

Whether Veblen's views are tenable or not their chief value lies in the fact that in considering modern industry he has approached the problem from the standpoint of human need. He has asked the questions : Are our productive methods suited to human nature ? What influence are these methods having upon humanity ?

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He contends that factory conditions induce a particular kind of thought :

“ The matter-of-fact logic of machine industry and the mechanical organisation of life constantly inclines him (the workman) to a rating of men and things in terms of tangible performance.”

The workman is influenced more by environment than tradition in the formation of his views. Psychologists have classified those who base their view of life on tradition as the “ stable ” type while those who form their views directly in response to their changing environment are the “ unstable ” type. Tradition acts as a stabilising force for it prevents people being swept along by the current of events. Industry, by breaking down traditional views, is the agent of instability and it is no accident that the most turbulent and revolutionary movements have their centres in cities which are influenced by industrial thought.

The outlook induced by modern industry is not accepted without opposition.

“ Neither the manner of life imposed by the machine process nor the manner of thought inculcated by habituation to its logic will fall in with the free movement of the human spirit, born as it is to fit the conditions of savage life. So there comes an irrepressible—in a sense, congenital—recrudescence of magic, occult science, telepathy, spiritualism, vitalism, pragmatism.”

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Pragmatism borrows something of the mechanistic outlook for it accepts the workshop standard of truth—Does it work? Can it be used?—the standard applied by workmen not only in the workshop but increasingly outside it.

Assuming the opposition between human nature developed under early conditions of nomadic or agricultural life, lasting for many generations, and the routine of modern industry we want to know what this will lead to. Obviously we cannot return to “a condition of moderately advanced savagery,” even if it were desirable. We may believe that with the continuance of machine industry the process of elimination will foster just those instinctive tendencies that will find adequate expression in industrial life. Time may make the necessary adjustments. But there is not much satisfaction in that for our generation, which is exposed to all the tremendous stresses and strains which the machine technique involves. We are the people of the transition and in us are all the pains, struggles and torments of transition.

A glance at the newspaper advertisements indicates the extent to which modern industrial life results in nervous breakdowns for the individual and the headlines keep us informed of the social breakdowns, strikes and turmoils, traceable to the same cause. It is doubtful whether the unpliable type will die out rapidly or if those who are left can be moulded as required. The instincts and desires that run

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counter to industrial practice are firmly rooted and there is always the danger that when the repressive process appears complete, a sudden surge and heave will dislocate the whole industrial mechanism and bring to the surface all those impulses which will have gathered strength by repression.

Veblen often appears like a high-powered Bentham, driven by a dynamo instead of a treadle. He applies a similar utilitarian—or mechanistic—view to life. Bentham in the early days of machinery expressed the idea that society could be geared up in a mechanistic “reasonable” way and made to run on strictly rational lines. Where Veblen differs is that with his perception of the momentum and force of machinery he combines a knowledge of psychology and so of human instincts. In allowing for the human recoil against mechanisation, he stands head and shoulders above those who are merely blind instruments of the machine era.

If we take a long view, however, we can see that in spite of occasional sharp conflicts, the general drift of modern industry is opposed to that emphasis on the individual which was characteristic of manufacture and commerce when it broke from the shackles of State paternalism in the eighteenth century. Merchants and manufacturers began to reach out after wider markets and to demand opportunities for freer expansion. Adam Smith and the economists of

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his time accepted as a truism that industry must depend upon the skill, dexterity and judgment of the individual workman, a proposition true of handicraft conditions but false to-day. The ideas they expressed of natural rights, self-help, free competition, opportunity for initiative, belong to handicraft and petty trade. Politically these ideas found expression in the American Declaration of Independence and the French affirmation of the Rights of Man.

While the individual was the centre of the productive process it was not out of place to talk of initiative, enterprise, individual rights, and so on. But with the coming of impersonal or mass production the workman ceases to be the centre and becomes merely a machine tender. The change which this involves is stated very clearly by Veblen (*Instinct of Workmanship*, p. 306).

“The designing engineer takes his measures on the basis of ascertained quantitative fact. He knows the forces employed . . . and he arranges for the processes that are to do the work, with only such calculable margin of error as is due to the ascertained average of the available materials. . . . He will be proficient in his craft in much the same degree in which he is master of the matter-of-fact logic involved in mechanical processes of pressure, velocity, displacement and the like.”

We can see how far this is from pre-occupation with individual characteristics and skill which

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distinguished the early stages of manufacture.

Regarding the workmen, he continues :

“The share of the operative workman is typically that of an attendant whose duty it is to keep pace with the machine process and to help out with workmanlike manipulation at points where the machine process engaged is incomplete. His work supplements the machine process. . . . The machine process makes use of the workman. . . . The ideal mechanical contrivance in this technological system is the automatic machine. Perfection in the machine technology is attained in the degree in which the given process can dispense with manual labour ; whereas perfection in the handicraft system means perfection of manual workmanship.”

Here is brought out the great difference between handicraft and machine industry. In one, the man handling his tools is the significant fact, in the other the machine or the factory plant is all-important. We calculate to-day the output capacity of a particular plant and in doing so we assume a supply of raw materials and labour. One result of this is that factory operatives not only feel themselves insignificant but they definitely react to the new technique which shapes their outlook on life.

I remember a huge automatic machine installed in the centre of a workshop for the purpose of turning out sparking plugs for motor bicycles. Long rods of metal were fed into the

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machine, which cut, shaped and bored them, putting a thread inside and then with a mighty jerk, clamping a thread on the outside, so that a nut could be screwed on. When all the operations were finished it dropped the sparking plugs ready made into the machine trough among the oil and metal waste. It was interesting to examine one of these small plugs and to see all the various operations carried out by the machine. But the enduring interest was the machine itself which went on turning them out in hundreds so long as the rods were provided. The workman, who smeared the rods with oil and poked another in the end of the machine when one was finished, played a very minor part. The process was far more important than the workman or the product. So it is with our whole industrial system when we get a close-up view. We cannot feel or see any individual power behind the mechanism, so we come to regard the working of industry, and—by force of example and analogy—the universe, in terms of what Veblen calls “a self-determining sequence of cumulative change.” In other words we accept the process view. It is easy to understand how men becoming familiar with processes in the workshop should simply regard the universe as a workshop run on substantially the same principles. This workshop conception of life proceeds from the known to the unknown and builds up an image of the unknown in terms of the familiar.

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objects about him possess personality; the factory plant ends, in its ruthless pursuit of efficiency, by denying the personality of the workman and using him merely as a lever.

One of the greatest gifts of the religious spirit to man is the sense of human dignity which it fosters and keeps alive. It has been the religious spirit with its emphasis on the divinity of life that has helped men to maintain their self-respect instead of becoming mere creatures of circumstance. No doubt that was the great appeal of Christianity to the Roman slaves. One of the defects of industrialism is that—so far—it has weakened this safeguard without substituting anything in its place.

Life in the Middle Ages centred in the cathedral which stands in opposition to the dynamo, the centre of our power-driven civilisation. This presents in symbolic form the immense difference in thought and feeling between the two periods. But the parallel breaks down when we consider the relation of the people to each centre of power. The cathedral was a life centre to which the people went voluntarily; they derived satisfaction from it; in it they found expression for the glory, the power and the beauty of their deepest thoughts and feelings. But they do not gear themselves to the dynamo voluntarily nor find any sublime satisfaction in their relationship to it. It is not a dignified relationship for the mass of the people. They are driven by the dynamo as part of the industrial plant and when

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they resign themselves to it and accept the machine outlook they resign themselves to functioning in life as bits of machinery.

The real parallel to the cathedral of the Middle Ages is the cinema of to-day. The cinema reveals what the man of to-day thinks, what he feels, what he dreams, his ideals and the standards of nobility and excellence which he has achieved and which his machine civilisation has given him. Here repressed humanity may indulge its desire for thrills, for splashes of colour and emotion, for anything that will help a dull, bored generation to avoid reflection. With its stucco and gilded plaster, its crude tawdry appeal to sensation, its continual skating on the surface of life, the cinema presents a complete and striking contrast to the massive and beautiful architecture, the mellow light, the depth, the grandeur of the cathedral.

To understand the religious spirit of an epoch we must examine its social and economic life. As G. W. Russell (A.E.) has phrased it :

“ It is the character of the social order and its effect on the daily lives of the men and women in a country, that we must look into if we are to prophecy political stability or chronic disorder. It has been said that the model of the pyramid was the tent of the herdsman, that the wooden hut of the early Greek found a majestic development in the Parthenon, and that the beauty of

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Gothic cathedrals re-created the mystery and gloom always about a people living in the forests."

But where can we find the beauty in a factory town to serve as a model or an inspiration? High, smoky chimney stacks, huddled rows of badly constructed houses, alike in their dreary monotonous ugliness, tell better than any words of the rawness of the life led there. The factory plants have obscured beauty and have come between man and a clear view of life just as the smoke from their chimneys gets between him and the sun. Who can doubt that the desert dwellers, who set up the Sphinx and the pyramids as everlasting symbols of the mystery of the desert which stretched before their tents, would never have felt that mystery if they had spent their lives as thousands of people do to-day on a round of petty repetition processes in a modern factory? Mystery, beauty, reverence, awe, all hold little place in the factory worker's life, and he is poorer for the loss. It is not only the factory worker who suffers in this way but all who come under the dominion of the machine. A slick, pitiful, commonplace vulgarity is the mark of our machine civilisation.

In such conditions the human tools bear the marks of their environment. Working in a big machine shop was a machine tender known to the others as Ragtime Joe. He acquired this name because of his habit of breaking into

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snatches of ragtime and dancing in a jerky, spasmodic way. He worked in a gloomy corner of the shop given up to milling machines that whirred and clattered with a sharp clack, clack, clack. After setting and starting these machines Joe had simply to look at them occasionally to see that everything went right. The rest of the time he spent whirling, pirouetting and chanting in hoarse unison with the machine clatter, his loose, lank limbs flying about to the beat and his shock of black hair tossing. Every now and then, as the clatter died down, snatches of song could be heard rising above it. The ragtime rhythm had beaten its way into his soul. To come on him suddenly in a dark corner of the shop, with arms and legs flying, was an experience; it was as though the spirit of the workshop had taken concrete form. Ragtime Joe belonged to the factory as much as Quasimodo belonged to Notre Dame.

Is the ugliness and narrowness of the machine outlook incidental or fundamental? Can it advance beyond its present narrow limitations? If so it may point the way to a finer beauty that will be the flower of the age. The iron fingers of the machine reach out everywhere but the machine operatives lead shut-in, narrow lives. Process has prevented them from thinking of attainment. Machinery and mankind stand as opponents; we are seeking for a synthesis. For a long time the workers resented the inroads made

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by the machine. Now it has become strong enough to over-ride them. They accept the machine and are allowing it to shape their outlook and their lives. But finally nothing can over-ride humanity.

CHAPTER VI

MACHINE CIVILISATION AND LITERATURE

IN literature as in social thought we can trace the influence of the machine. Literature is part of the great moving current of life tossed into all manner of whirlpools and eddies through the personalities of the writers but not to be understood without reference to the human and social problems around them. Consequently in the period following the industrial Revolution, writers either reflected the dullness and complacency of the age or else expressed the restlessness of the human spirit, torn with scepticism and doubt, chafing against circumstance. One way out was to get away from life into romanticism after the fashion of Stevenson and Scott.

People were dazzled by the dream of gold—the hope of universal prosperity—but industrialism soon transmuted this into dull leaden lives. Carlyle, Ruskin and a few others raised their voices in opposition. Thackeray's *Vanity Fair*, which appeared in 1846, had for its theme the manner of life of the social set who believed in selfishness, show and money.

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Sensitive artists were not disposed to bow down before the golden calf of industrialism and the men of the nineties outraged the conventions they despised. But they were pessimistic and ineffective. Often with one stroke they rent the black cloak of hypocrisy and the garment of wisdom, striking blindly and passionately. They were walking vacuums who had cast out the prevailing standards but had nothing to put in their place. Dickens felt the harshness of the industrial era and as a novelist of feeling tried to soften its crudest features. But he had no new thought to offer. All he suggested was that men should be kinder to each other, to the weak and unfortunate. He was, in a way, the pioneer of welfare work. Imaginative writers who were also social critics attained greater influence when it became clear that industrial society was not able, in its own phrase, "to deliver the goods." A widespread feeling of disillusion had already made itself felt when the world war broke out.

The recoil from the war has been tremendous. Viewing the piles of shells and machine guns, the earthworks, tanks and all the ghastly equipment, writers felt the need for asserting the superiority of the human spirit over the sullen mass of material which had been allowed to master it. Mechanically organised slaughter with its calculations of "man power," subordinated life to military strategy much as the huge industrial plants run on mass production lines, dominated

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countless lives. But in the case of war those affected included men who were able to make an articulate protest. The insistent claim of neglected personality made itself felt through the growing interest in psychology which writers have used as a weapon to save the individual from being crushed beneath the weight of an efficient mechanical order which allows for everything except human personality.

It is through the medium of the novel that the case for man is now being presented. Each age has its dominant art form. For the thought of one epoch we look to sculpture and find embodied there the contemporary ideals. In succession we turn to architecture—the cathedrals and castles : to the painters of the Renaissance ; to the Elizabethan dramatists ; to the writers of the long heroic poems. But with its loose, free and plastic form the novel is best suited to express the demands and problems of personality to-day. Its only rival is the “silver screen.”

Art is an individual as well as a social matter. What the artist sees with his own eyes and mind he must express. His vision will be bounded only by his sensitiveness to impressions, his sympathy and understanding. Yet though he is so individual he is ever responsive to the winds of thought sweeping across the world. So we may expect to see the changing status of the worker, which is a marked characteristic of the age, reflected in modern writing. Pick up any of the

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imaginative books written a century ago—and a good proportion written to-day—and one sees the wage-earners represented chiefly by old gardeners and servants, family retainers, whose quaint sayings and odd opinions provide light relief from what we may term the human element of the story. Another typical figure in Victorian literature is the cap-fumbling workman who cringes to his “betters” as a matter of course just as in remote villages the women still bob to the squire.

Zola broke the convention that the wage-earner's business in books as in life is to fetch and carry for the principal characters and his story of a French mining village—*Germinal*—still remains an ideal example of writing in a working class milieu. The cheap eating-house, where the workers are penned together, elbow to elbow; the raw mornings when they trudge miserably to work; the rare holidays which they spend in uproarious enjoyment, winning cigars and gimcrack ornaments at the booths in the fair; their loyalty to each other; their endurance; the tragedy of the worn-out workers; the sullen bitterness of the strike; the unredeemed ugliness of their uncouth lives—all this is rendered with faithfulness. But apart from closely observed details it is perhaps Zola's confident belief in something better which reveals the authentic spirit of modern times.

Those who come hungry to the banquet of life sniff the appetising odours with more keenness

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than those who have eaten their fill. Many writers of culture—as for example, Anatole France—seem always a little weary. They repeat with the Prophet—Vanity of Vanities: All is vanity. Often they present in beautifully polished language the sentiments of a maudlin drunkard—full of self-pity. It is so easy to slide along murmuring nothings about Fate and the Irony of Existence. They lack virility—the virility of toil. Such literature, even at its best, is the literature of the effete and the replete. Anatole France, it is true, had another side; a side of delicate, penetrating irony. But it was not this which secured the approbation of the French Academy.

Satiety dulls the edge of anticipation and of hope. So we find all manner of scepticism and pessimism in the outlook of those before whom the world has spread its bounty. They have been everywhere and have seen everything and they begin to find it boring. To such people the literature of decadence makes its appeal. They become interested in words for words' sake. Those who have leisure to study style and are able to appreciate verbal excellence, delight in a beautiful arrangement of phrases, especially when they believe that the world holds nothing worth striving for. But the influence of modern industry is against this point of view. The great machines, pounding, whirring, getting things done, bore right through the little elegancies. They teach construction, effort. They inculcate

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the "process view" and all who come within their scope are affected.

We see then a literature of relaxation—uninfluenced by industry—which often has much beauty, and a literature of effort which frequently has none. The sophisticated and the primitive regard each other with mutual disgust. A writer like Zola who elbows his way forward in ill-bred unmannerly fashion, not pausing to pick and choose his phrases, who has a boisterous desire to rush on and get somewhere, arouses the same repugnance in the cultured minority as a Bank Holiday crowd rushing to the station and packing the trains. One can almost see the aristocratic eyebrows disdainfully raised. But the red-faced representative of Demos, who leans out of the window and waves his hand with frantic cheerfulness cares nothing for this. Good-humoured vulgarity and frigid decorum meet without understanding. Politeness plays little part in the factory. There is no time to study deportment. What is wanted is a man who will grip the machine handle and push it over quickly. That note of sharp practicality is found in the literature influenced by modern industry.

Machine influence is visible, not only in literature dealing with working-class life, but also in that reflecting the ideals and views of industrial magnates and in much that, without having any particular label, has received an impetus from industrial society.

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Yet an important part of industrial literature is the literature of the working class. Robert Tressal's *Ragged Trousered Philanthropists* has a pioneer place. It is a brilliant piece of self-expression by a building worker, clouded by the bitterness of ill-health and struggle so that in part it becomes a pamphleteering diatribe. But for all that its satirical and biting etchings of character have the ring of truth. Tressal leaves an impression of hopelessness and, looking back to the time when he was writing, this appears natural enough. To-day no one on the side of the working class doubts its coming victory. The only question is how and when that victory will come. That the triumph of the machine will mean the triumph of the machine workers is evidenced by a whole stream of events. The weakening of tradition and of authority founded upon it, a host of influences, not the least among them being the changing spirit of literature, all reveal the rising tide of democracy and show that the process of erosion is going on.

Some who speak of working-class literature mean only churned-up political rhodomontade. But while working-class literature is in the political manifesto stage it is not literature and it is not working class. The literature of the wage-earners only reaches maturity when it ceases to be pitched in an wholly aggressive key and expresses the life of the workers as something of intrinsic worth and interest apart from polemical purpose. Yet political and industrial struggles

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have their share in all this as they do in life. A literature dealing with the cottage, not the hall; the tenement, not the drawing-room; the workshop, not the life of leisure—and viewing all life from this new angle—is what is meant by working-class literature. Such a literature cannot be confined to the workshop for it is not only or chiefly with the worker as a worker, but with the worker as a man or woman that we are beginning to be pre-occupied. In the older romances no hint of the need for earning a living is ever given. All that is decently veiled. Perhaps the hero of the story may be made a partner in some vague and profitable enterprise when he marries the heroine, but that is as near as we get to the economic problems of life.

The view of the industrial magnates and managers—the Henry Fords, big and little—is expressed in innumerable books and articles. It is one of uncritical adulation of machinery, of glorification of a machine fetish. It is understandable that people who can jump into motor cars and push bells when they want anything done should rave about machinery. That it turns men into robots is no affair of theirs, and they easily and honestly persuade themselves that the men are fit for nothing else. This attitude will be considered in more detail later for foolish adulation of the machine is often confused with admiration for its qualities as a burden bearer.

The Harbour, by Ernest Poole, dealing with the dock life of New York, has that intensity

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which belongs to the literature of the machine age, while in the *Octopus* Frank Norris gets something of the same vibrant quality. A note of white-hot sincerity burns its way through their words. These books are not rich in literary allusions ; there is little conscious artistry ; they are formed on no classic model of beauty or grandeur. You do not feel behind them the weight, the authority, the garnered wisdom of innumerable books. Going direct to life and dealing with the human urgency of the struggle for bread, they have a formlessness, a rugged impressionistic appearance. The direct impress of environment results in ragged edges. The grandeur that was Rome and the glory that was Greece mean nothing to them, but the bread-and-butter problems of the present have all the elements out of which working-class literature will be made. The Muses, the Fates and the Furies have their being in the workshop and the slum no less than in ancient Greece.

In most big industrial cities is a welter of streets where you may find the wreckage of humanity. It is easy to be convinced, if you see the undersized, misshapen, bow-legged, wry-necked creatures lurking in the alleyways, that the worst strains are the most prolific and that *Well's Island of Dr. Moreau* is a horrible reality. The lights from the public houses leer at us through a sickly yellow gloom till they look like horrible old men gloating over their obscenities. This crushed mass of humanity is made up of the

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broken ends of labour tossed down as they are used up in the machine. Because wage-earners are never far removed from such a fate their literature must have a certain grimness, a concentration on immediate realities and a sympathy with suffering which the literature of the leisured class can afford to ignore. Now that the wage-earners are advancing in politics, in economics and in social estimation, it is inevitable that they and their special problems should come to occupy a larger place in literature, long the preserve of urbane, cultured men of letters who have played beautifully with words. A whole new world which cannot be crushed into any formula is now demanding expression.

Characteristic of the new literature is its note of incisiveness. It cuts as remorselessly as a machine tool. It is in part a protest against the machine influence though it borrows from modern industry the passion for analysis, the desire to dispel unnecessary mystery which is a key motive of our efficient industrial system. In America, the land of high speed production, we may expect to find the literature of effort more fully developed. There no haze of tradition blurs the outlines. Certain American writers in their directness and simplicity remind us of the Russian realists. They lack the mysticism of the Russians, but for all that they cast a splendour over life. Even when the mirror is held up to a repulsive Babbitt or a Gopher Prairie we feel that it is intended to show the contrast between this and

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the possibilities of human achievement. The Americans are the novelists of the Great Adventure of body and mind, while the Russians were the interpreters of the soul of man. The tragic tatterdemalions of Dostoyevsky, alive with pity and terror; Gorky's ragged, defiant vagabonds with drink-sodden and dream-tinted lives; Tolstoy's serfs, stamped into the mud, but retaining human characteristics—all these penetrate the mechanics of existence and show the elemental qualities which lie behind circumstances.

The link between the Americans and the Russians—a link which binds them closer than either is held to the traditions of Western European culture—is that they are primitives, traditionless and forward-looking. It is fitting that in America, the land of fore-shortened traditions, where history begins with the Pilgrim Fathers, a new school of novelists, eager, vivid, and unrestrained, should burst on the world. With fierce energy the pioneers sang of force in Nature and Man, splashing crude colour on a wide canvas. Jack London created the Strong Man before whom America bowed, even the trust magnate, appropriately enough, seeing his idealised self in some *Burning Daylight* or *Sea Wolf*. Frank Norris re-inforced this with his song of the Open Spaces and the Big Cities. In his *Octopus*, that epic of red-gold wheat, the underlying motif, the hammer-beat of the whole, is the might of generation and growth. Now we

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have Sinclair Lewis hymning the wonders of Science. To Man, the magnificent fighting animal, the superb brute—the idealised American—we have added not only the ranches with their teeming harvests and trampling herds, but the marvels of science which are the mainspring of American civilisation as they are of the industrial civilisation of the world. Frank Norris wrote prophetically of this new literature when he said: “She is a Child of the People, this muse of our fiction of the future, and the wind of a new country, a new heaven and a new earth is in her face and has blown her hair from out of the fillets that the Old World muse has bound across her brow. . . Believe me she will lead you far from the studios and the æsthetes, the velvet jackets and the uncut hair. Tramping along then, with a stride that will tax your best paces, she will lead you—if you are humble with her and honest with her—straight into a World of Working Men, crude of speech, swift of action, strong of passion, straight to the heart of a new life, on the borders of a new time. . . .” This new literature is exemplified in the work of Anzia Yezierska who went to America a penniless, friendless girl and has written *Children of Loneliness*, *Breadgivers*, and other intense studies of foreign immigrant life. Her writing is one cry for human liberty. Yet so far does it fit in with the spirit of the age that when she turned to journals which care for literature and do not placard their love of humanity, her strange fierce dream of freedom

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and beauty gained expression. At first sight it may appear strange that in America, the land of the dollar, a real representative of the under-world of rags and pain should speak—not as the demagogues, who talk of hunger, poverty, cold, and wretchedness as material for elections—but of hunger of mind, of body and of spirit. Yet a hard industrial civilisation throws up its own burning idealism in revolt.

The new literature that is being produced in America is a challenge to standardised ways and rules. It demands that everything shall stand up and justify itself. The Americans share with the Russians the power of analysis. They are not content with sticking on plasters but are busy tearing away externals and revealing what humanity is really like. It is by a retributive stroke that in a land of forced uniformity there should appear a formless, untidy writer like Theodore Dreiser, who cannot be pressed into any cultural mould or stereotyped pattern. From the point of view of the expert who would turn out literature like check aprons—in regular squares—Dreiser's books are ill-made and shapeless. The only redeeming point which can be urged is that they are read while efficient books, planned by experts, perfect in plot, shape and balance, lack one essential—readers.

In comparison with the older school these writers lack finesse just as the diplomacy of Abraham Lincoln appears crude beside that of Metternich. But they are as direct and forcible

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in their appeal as the rail-splitter himself. In *Babbitt* and *Main Street* we meet characters whose thought processes are extremely primitive and whose conversation consists of standardised grunts—in a word, the typical business man. Books about such characters can hardly shine with diamond-like brilliance; there is too much dross in their composition. But the absence of beauty does not trouble the writers. They are too busy hacking, cutting, testing, analysing, looking at life through new glasses or no glasses at all. And if ugliness is revealed it is not they who are at fault.

America, even before it became identified with mass production of goods and ideas was not attractive to literary men. Henry James is typical of those fugitives who fled from the unpromising material in front of them. He sought cover behind a decorous shield of words which he interposed with great skill and delicacy between himself and the rawness of existence. He disliked the shock of the event. Even his sentences were reluctant to end. Machine civilisation and the bent of thought which it brings do not fit in with this. He belongs to the old world. To him it would be incomprehensible that modern writers should glory in that very primitiveness which he detested. In the world of culture as in the world of life there are two camps—the forward-looking and the backward-looking. A culture that has flowered and reached its full beauty grows conservative and decadent. It

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serves purely as a classic model. At such times only those with a new outlook can cut their way through the fungus growths that wreath decay. When this is necessary, to be traditionless, to have a streak of the primitive, is no drawback. It makes for virility. This may be the greatest gift of America and machine industry to the world.

The Russians were never so overwhelmed by externals as the Americans so their writers tended to ignore Western ideas and standards. Brooding over life, they remained novelists of feeling and temperament rather than novelists of thought. If the younger American writers can combine with their incisiveness an antagonism to the vulgarity of the business world they may give us a truer statement of human values in terms of the machine age. Possibly they may make explicit what was implicit in the Russian view, just as French writers have made English philosophical thought intelligible to the world.

While the American crowbar gang is at work there is bound to be dust and confusion. Only later, when the debris is cleared away, can we judge of the progress made. In Europe we have had our crowbar periods and literature has been strengthened by them. Zola broke through the barriers of formalism; Ibsen shattered musty conventions; Hauptmann revitalised the German theatre. But the most sustained struggle was that of the Russians against brutish despotism, which is analogous to that against the iron

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discipline of the machine order. Tolstoy anathemised the enemies of thought; Gorky blasted their conventional lies; Tchekhov stripped their disguises word by word; Turgeniev smiled blandly as he used his scalpel; Dostoyevsky mined them from the lower depths. Now the Americans, faced with an ignorant industrial plutocracy, are having their turn and attacking with all the modern weapons of intellectual warfare.

European literature since the war has passed through a City of Dreadful Night. The loud jeering laugh of the profiteer wilted up such scraps of idealism as were left in the hearts of the young men as they limped home from the trenches and joined the queues at the Labour Exchanges. Starving Europe heard nothing but the wranglings of the moneylenders over their loans. But to America, out of touch with ruin and desolation, the war was a thrill of jazz and dollars. Their writers escaped that acute melancholia which disfigures so many post-war books in Europe. Frontier exuberance is not yet exhausted in America. It has passed through industry and the barbaric yawp of Walt Whitman has been transformed into the piercing yell of the factory hooter. American literature, while retaining the frontier energy which is seen to the full in Jack London and Frank Norris, has become critical, realist in its approach.

In Civilisation in the United States, a collection

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of thirty essays by American writers, the editor, Harold Stearns, says :

“The most moving and pathetic fact in the social life of America is emotional and æsthetic starvation of which the mania for petty regulation, the driving, regimentation and drilling, the secret society and its grotesque regalia, the firm grasp on the unessentials of material organisation of our pleasures and gaieties are all eloquent stigmata.”

It is inevitable that the human spirit should cry out in passionate protest against this paralyzing influence. With energy unsapped by hopelessness and intellects free enough to escape the moulds of tradition or uniformity, American writers are taking the crowbar out of the hands of the Russian masters.

Those who have launched the American revolt, although they are bitter critics of American complacency, have the confidence of youth and an exultation in the struggle. In the same way Russian literature in the nineteenth century had that bitterness which belongs to youth not the worthless, toothless, peevish discontent of age. Only the young in spirit are bitter ; the old are beaten or resigned.

Among the Russians it is in Gorky that we get the clearest expression of anti-industrial feeling. We jostle with the gay careless, predatory vagabonds of the waterside who know no law but their appetites and are quite shameless. These

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vagabonds have a special attraction for Gorky. He has far more sympathy for those who react fiercely against industrial and social discipline, than for those workmen who submit to these bonds. In the West inured as we are to a regulated existence in which we fit as cogs, Gorky's fierce cry for freedom strikes us as utopian. We have no point of contact with him. He expresses the ideas of primitive nomadic society to a highly-industrialised people. Yet there must be many who are caught in this intricate Western web of life who pause half-regretfully for a moment before his dream of freedom. People, he says, are enslaved by their own creation, the mighty machines which they have made. In *Chekhov* he strikes this note insistently :

“ Ludicrous and pitiable were the long strings of dock labourers bearing on their backs thousands of tons of bread and casting it into the iron bellies of the ships to gain a few pounds of that same bread to fill their own bellies—for their worse luck not made of iron but alive to the pangs of hunger. . . The men, tattered, drenched with sweat, made dull by weariness and din and heat, and the mighty machines, created by these men, shining, well-fed, serene in the sunlight.”

This is an angle of approach which drives the Manchester school mad. But it is well that the gigantic schemes of production and commerce in which men only are overlooked, should be corrected by it.

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The dominant motives in Gorky's writings are love of freedom and love of beauty, two things which are most neglected by our industrial civilisation. We are too accustomed to routine to place ourselves in the mental attitude of those Russians to whom regular hours, entering and leaving by a certain time, is so irksome that they cannot endure it. Before the factory era in England the people had similar feelings. At one time, only the workhouse children could be had for factory work but in our own day the cotton operatives bitterly resisted the abolition of the half-time system for their own. The idea that men should patiently submit themselves to the control of others makes Gorky's vagabonds laugh out loud; they are as free as the wind. He rarely touches directly on industrial life but when he does so his point of view is definite.

"Every day the factory whistle bellowed forth its shrill, roaring, trembling noises into the smoke-begrimed and greasy atmosphere of the working men's suburb and, obedient to the summons of the power of steam, people poured out of the little grey houses into the street. With sombre faces they hastened forward like frightened roaches, their muscles stiff from insufficient sleep . . . In the evening when the sun was setting, the red rays languidly glimmered upon the windows of the houses, the factory ejected its people like burned-out ashes."

The ugliness and waste of life involved in

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modern production must strike many of those who suffer under it and they are not compensated by increased production. Gorky's description is true of England as of Russia. How can such a life be other than a narrow cage? Gorky's passionate cry for freedom probably matters much more to the English worker than the contents of all the volumes written by Mr. Sidney Webb for the more scientific regulation of industry and life. There are two ways of looking at a factory. One is to think of all the necessary things which can be produced quickly there for society to consume; the other is to note what great, grim, noisome places they are for people to be penned in for the best part of their waking lives. Gentlemen like Mr. Sidney Webb, with his zeal for humanity at large, take the first view. Men like Gorky, who love freedom for themselves and have felt the burden on their own backs, take the second. The first is more traditionally English, the second will be sympathised with by those who know the factory from the inside.

The human craving for freedom is not confined to any one country. Vagabondage is the barometer which marks the pressure of circumstance on people and the degree of resistance they possess. Vagrants either emphasise the desire for freedom or their failure to find a place in organised communal life. The social organisation or the individual may be most to blame but some

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mutual adjustment will have to be made. So while thinkers like Mr. Sidney Webb have their uses in advocating the claims of organisation, we are in this country already so mechanised that Gorky is a valuable corrective to the dominant English point of view.

Imaginative writers show us the trend of the age. Their work is close to life. They attempt to drag out its innermost secrets and naturally there are evidences of scuffle. Their work is often crowded and feverish. The sense of wholeness and calmness is lacking. But with all the fragmentary character of their work they are succeeding more and more in expressing life with its suppressions and oppressions, its longings and leaping hopes. They drag its secrets out one by one and lay them somewhat incoherently at our feet. Later we may have more calmness and beauty than is possible in the heat of the onslaught. Life may be calmer and more beautiful too.

Now we are in the midst of the conflict. And the new spirit in literature speaks as it surges through our industrial civilisation in the words of Ernest Poole's book, *The Harbour*.

"Make way for me. Make way, all you little men. Make way, all you habits and all you institutions, all you little creeds and gods. For I am the start of the voyage—over the ocean to heathen lands! And I am always starting out

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and always bearing you along ! For I am your
moulder, I am strong—I am a surprise. I am
a shock, I am a dazzling passion of hope—I am
a grim executioner ! I am reality—I am hope !
I am the book that has no end."

CHAPTER VII

THE MACHINE DRAMA

THE emergence in Europe of a machine drama is a further indication of the growing influence of machinery on social thought. It is curious that in England and America, where the machine is pre-eminent, such plays are as yet few and mostly imported from outside. Toller's *Machine Wreckers*, *Masses and Men*, Kapek's *R.U.R.*, which added the word Robot to the language, have been produced in London while *The Adding Machine* dealing with human nonentities who function as machines was produced at one of the smaller theatres. Hauptmann in *The Weavers* depicted the struggle of the hand workers against machinery but the machine theme has scarcely been nibbled at in the English speaking countries.

A striking difference between the dramatists I have mentioned and the experimentalists in Italy and Russia is that while the former lay stress upon the personality-destroying influence of modern industry, the newest drama unreservedly glorifies machinery. These two countries,

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so dissimilar in political structure and ideas, have each broken with tradition and this has exposed them to the full force of machine influence. Marinetti, the Italian Futurist, says that machine forms express the true spirit of the age. The machine possesses all the finer attributes of man and he has only to assert the will to be a machine to recapture the best part of himself. Consequently in Italy we have a ballet which reproduces the life and environment of the locomotive. The dancers are enclosed in cylinders, funnels, etc., representing parts of the locomotive, the scene being that of a dissected railway system. Marinetti's idea seems to be that man is a cross between a marionette and a Meccano set.

In Russia the same idea is being worked out. According to Foregger and Meierhold, leaders of the new movement, machine drama has a tremendous significance for Labour. They say that workmen and large scale industrialists both accept the Machine Age with enthusiasm, the only difference being that the industrial magnates are solely concerned with efficient production while they use the machine idea to teach collectivism—collective production, ownership and distribution. In the Zon, one of the largest theatres in Moscow, the audience has to make way for the players as they dash up and down on motor bicycles. In another theatre familiar sounds are obtained by means of a jazz orchestra consisting of a variety of instruments—a motor hooter, typewriter, pieces of metal, etc. Foregger, the

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director of the Mastfor theatre, has invented grotesque machine dances, which imitate the movements of pistons and flywheels. Actors have to practise "Taylorised gestures" and use their limbs in a "bio-mechanical" fashion. In *The New Theatre and Cinema of Soviet Russia* Mr. Huntly Carter tells us :

"The new Machine dance ideas are very popular with the workers who doubtless recognise in the mechanical movements of One Step, Two Step, Fox Trot, Cake Walk, the syncopated movements of working machines. The workers themselves excel in syncopation and machine rhythm. For this reason the stylistic gestures of the machine and the mysteries of Jazz music have become subjects of much study and experiment."

Biological diagrams of "Taylorised Gestures" showing "turning movements at ninety degrees" are given with the following explanation :

"In brief the spirit of Taylorism—American Taylorism—has been accepted in Russia as the ideology of the new style. Taylorism is, as we know, a system of promoting the greatest efficiency in a worker. It is one that reduces the worker to an energy-saving automaton. This system is at work throughout the new theatre.

"Taylorism proposes that before a bricklayer lays a brick he shall be trained to regulate his movements . . . Likewise the new brain-and-body system of acting proposes that before the

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actor plays a part he shall be trained to estimate his gestures to a hairsbreadth. Salvini said that the actor needed voice, voice, voice. The New Russian Theatre says that the actor needs only gesture, gesture, gesture." (pp. 277-278).

It seems strange that in the new Russia a system that "reduces the worker to an energy-saving automaton" should be praised. Modern industrial psychology has long since discarded the cruder features of the Taylor system which seem to be practised here. Yet the idealisation of the machine has progressed so far that such a sympathetic investigator as Mr. Huntly Carter says, ". . . they attribute to the machine all their social and moral attributes . . . their own vitality, strength, courage, clearness, steel nerves, persistency, precision, rhythm, style, endurance."

Meierhold derives his view of the machine directly from Marinetti but he relates this to his mass or co-operative idea of society as a great industrial machine of which each individual is part. In one of his plays the characters instead of reaching heaven enter, in the last Act, a mechanised and electrified Russia. Mussolini, Henry Ford, and Lenin are at one in their enthusiasm for mechanical efficiency. Italy and Russia in responding to these influences show the widening breach between the liberal thought of the nineteenth century and the industrial standards of to-day. In the nineteenth century the mass of the people had not awakened to any sort of social consciousness. Within the restricted circle

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of cultivated society there was freedom of opinion, play of ideas and opportunity for individual development. The threat from below had not become serious. The helots of society had not been disciplined by machine industry. The array of conflicting forces which belongs to a period of social tension did not exist. The first result of a period of social tension is restriction of freedom. We live in the shadow of the all-dominating machine. Even in America where social conflict has not become acute, ideas of individual liberty do not harmonise with the industrial order.

The old view of machinery expressed by Morris and Ruskin was that it limited the creativeness of the craftsmen and was a danger to personality. Much of the nineteenth-century Labour thought was touched with this anti-machine idealism. Modern Labour enthusiasm for machinery means that it is viewed as the burden bearer which can save human backs. Workmen model themselves on the machines they mind instead of resenting the pressure. They do this at the cost of personality. Although arguments based on craftsmanship no longer apply, the need for safeguarding the individual is as great as ever.

King Machine has been enthroned on the Russian stage and it is no wonder when we consider what machinery means in the present period of construction, but when enthusiasts emphasise this as a new revelation it is necessary to ask ourselves just what it is that we want from the stage.

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The highest form of drama is that which enables people to develop as human beings—which reveals to them beauty, nobility, dignity, all those qualities which differentiate men from machines and raise them above the beasts. There is much in nature, life and art that is beautiful and un-Taylorised. It holds us by its graceful loveliness just as do the human qualities of character and intellect. What has the Machine Drama to say to all this? Would it limit men to its own narrow scope? It certainly appears as if it celebrates the triumph of the machine and not the triumph of man. Huntly Carter says that “bio-mechanics,” the science of the mechanism of the body, assumes that the worker is an organised piece of mechanism like a machine . . . and that he is so accustomed to machine movements and sounds that they form his natural modes of expression.” Upon similar reasoning I suppose the swineherd would be expected to confine himself to grunts!

So far it has, unfortunately, been found impossible to get plays turned out by machinery, and the dramatist is still allowed, within limits, to give us his glimpse of the wildness and sweetness that eludes our machine-ridden civilisation. But the actor is treated like a routine industrial worker. In all this we see man engaged in re-making himself as a machine, and the result is not inviting. It is the apotheosis of the commonplace, the mass-production of robot-like men who are not encouraged to aim at anything

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higher. Growth, development are frowned on and we are supplied with standard men as if stamped out by a machine which can supply any quantity the same shape and size.

Mr. Huntly Carter, though he has his misgivings, may try to convince us that the drama of the future will be that of workmen who, after tinkering about all day with gas pipes and boilers, will dress up as gas pipes and boilers at night or will go to watch others doing it. With some industrial experience to go upon, I can assure him that whoever else will stand this, the working man will not. Gas pipes and boilers will have lost all novelty and attraction for him by the time the day's work is over. It must be interesting to ramble round Europe and see actors made up to resemble a row of screws on the stage, but a few years in a motor factory would probably result in a yearning for something else, that is unless the worker allowed industry to eat him up. The working-class outlook does not mean becoming reconciled to ugliness, to functioning merely as bits of machinery. It means, precisely, objecting to these things. Thinking workers, like other people, desire to develop themselves as men and women, to extend their mental horizons, to gain more experience, more freedom and to receive fresh stimuli to thought and endeavour. Though machinery enters into the drama it must not be allowed to push life and beauty out.

Workmen will continue to crave for those human attributes of which they are deprived

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when they work and live in surroundings of sordid ugliness. Social progress consists in giving satisfaction to those cravings, not in causing them to be relinquished. The plays they want will deal with realities, crude realities maybe—the realities they know. But it is the spark of human personality running through such creative work that will move and inspire them.

Typical of the new drama that will live because it has a human message is Mr. Sean O'Casey's *Juno and the Paycock*. For some years the author was a Dublin workman. But he did not conceive it to be his high destiny to make a play in which the characters function like the wheels or levers of a watch. The action takes place in and around a dingy, dilapidated Dublin tenement, whose bare, creaking stairways are haunted by drunkenness, shiftless misery and death. A comparison of *Juno and the Paycock* with W. B. Yeats' *Cathleen ni Houlihan* reveals the change in the spirit of the age. Between the grand shadowy romantic figure of Celtic Twilight days, beckoning to sacrifice and Juno, the tenement charwoman, lies a whole world. But Juno shares with *Cathleen ni Houlihan*, qualities of dignity and nobility that rise starlike out of squalor, shining brilliantly because of the surrounding darkness. It touches heights of humanity worth sharing. This is the new drama derived directly from working class experience, which sacrifices none of the fineness of the old.

No, there is nothing distinctively working-class

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about the glorification of machinery in drama. In Fascist Italy it is being done as in revolutionary Russia. It is probably a mark of transition. To triumph over the machine and use it for social ends is a fine thing—so is arithmetic, though we don't make algebraical plays about it. To-day the workers are subordinated to the machine; their hours are arranged so that the machinery may be kept running. Their lives are shaped by the capacities and needs of the machines and all rose-coloured machine talk is distinctly premature.

Mass organisation, especially on military lines, is bound to result in strengthening machine conceptions. But these conceptions are the allies of dictatorship rather than democracy. Yet the end of all social progress is to make people individuals. We do not want a bureaucracy and a blurred crowd, but a community of thinking, intelligent, striving and developing human beings, each entitled to an uncramped existence. If in the experiments of collectivism at present being carried out, it is assumed that besides attacking individualism it is necessary to attack individuality there will inevitably be a great human recoil.

It is possible that the mass of the people to-day may be temporarily submerged by the power of the huge factories; they may accept the impress of these machines on their souls and consent dully to be made after the pattern of the iron monsters they tend, but always there will be

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those standing for human liberation who will decline to accept this position as desirable. The natural impulses of the people will eventually free us from the purely commercial theatre with its degraded sensational appeal, and from the equally unhealthy machine drama whose ugliness and limitations are considered suitable for the inferior "masses."

Mr. Huntly Carter says truly :

"The future of the Russian theatre belongs to the soul of the Russian people and to those who know how to communicate this soul by spiritual rather than mechanistic means. For the present, King Machine is the director of the theatre. King Machine will play his essential part and then die a natural death."

Enthusiasts tell us that the machine age will produce its own art forms to express its own vital ideas, and that nothing is to be gained by clinging to the past. They claim that it is a conflict between the beauty that belongs to museums and art galleries and the beauty that is a living expression of the modern world. Trotsky has written a poem in honour of the machine—a parody of an old peasant folk song—which reads :

Oh, Machinuska, lightly!
Oh, the little steel one
Runs of itself
Oil her and let her go!

Here it is the efficiency, precision and move-

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ment of the machine that are celebrated. The kernel of truth contained in the machine drama lies in its emphasis of usefulness against uselessness. Those influenced by the narrow utilitarian ideas of the machine technique are setting out to create a world after the fashion of the factory plant. The music they appreciate is jazz which combines the hoot of motor horns with the piercing scream of the factory whistles, the art and drama they choose has the impress of the machine. The beat of the engine, the thud of the hammer, the whirring wheels, the flying arms and legs, the bent backs of the machine minders all blend into a triumphant, tumultuous song and dance. They want a world with a huge dynamo at the centre driving everything and everybody. It is their idea of a dynamic view. By submitting to be instruments they feel a sense of liberation. The next step seems to be the cult of the machine. It may raise the general standard of comfort. The machine is pushing its way through society and using men as levers. They are intoxicated with a sense of power. They do not see that the machine may bring enlightenment or degradation. It is only by insisting that human personality is greater than any machine and that drama must have a far wider, deeper and finer aim than the machine worshippers are prepared to admit, that we can use the machine and not be used by it.

As between virility and decadence there can be only one choice. The languishing young man with the sunflower in Gilbert and Sullivan's

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Patience contrasts unfavourably with the spirit of energy in our industrial civilisation. It may be that the ugliness of the new drama—like the ugliness of the machine age itself—is due to immaturity. There is something living, growing, moving, developing in this new civilisation. It is chaotic, inchoate, shapeless. But when the form is set and the full beauty attained there is no more life. That is why Conservatives can so often bring forward accusations of crudity, rawness, ugliness against a developing movement. It seems often so unintelligent and confused, lacking in clear expression and precise form. To range one's self with the old gives a sense of standing with all that is rare and fine as against all that is incoherent, excited and effervescent. That danger we must try to avoid, for we cannot deny life.

In criticising the machine drama I do not criticise it because it is new or because of any transient ugliness of growth or immaturity. I find fault with it insofar as it tries to prevent growth.

CHAPTER VIII

TRENDS OF MACHINE THOUGHT

THE war period was an Eldorado for the vendors of beautiful phrases, but it left behind it a feeling of disillusion at the unrealised hopes of a new world. Idealistic and rhetorical appeals were overshadowed by a more realistic, results-demanding, process view. At first, exhausted by the great effort, men settled down to work in a war-weary, poverty-stricken world, content if they were allowed to do so. They gave up their belief in ideals and social progress. Such a position could not last and soon their thought began to be shaped by the work itself. As Professor Marshall says in his *Economics of Industry* :

“. . . the business by which a person earns his livelihood generally fills his thoughts during by far the greater part of those hours in which his mind is at its best ; during them his character is being formed by the way in which he uses his faculties in his work, by the thoughts and feelings which it suggests.”

It is no wonder then that we are now getting

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the direct application of workshop standards to the outside world.

Orthodox political thought bases itself largely on tradition, on veneration for the past. Political philosophers write of the beauties of the Greek City State and, as Burke did, clothe the British Constitution with glowing and sonorous phrases. The Liberal school is equally remote from reality. They postulate an ideal State which has little to do with the actual, and has no relation to the underlying economic life of our times. But amid the rude bustle of a jostling civilisation the workers have scant leisure to appreciate the delicate balancings of an ideal Liberal social order or the richness and beauty of the past. Tradition does not weigh much with them; immediate necessity counts far more. Here is the key to modern labour politics—the politics of the factory.

When Lord Hugh Cecil claims in his book *Conservatism* that property rights are absolute and do not depend in the slightest degree upon whether the owner makes a good or bad use of his possessions, such a view is completely unintelligible to the factory worker. He wants to know the reason in terms of utility for such rights. This talk of absolutes appears to him like hanging pictures in the air or like a machine working without any power to drive it. In his experience everything is linked up and possesses certain specific functions. A machine tool is shaped in a particular way to do certain work—for what work

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or purpose do these property rights exist? These thoughts and standards arise naturally in his mind and he finds a growing incompatibility between tradition and utility.

The judgment which he applies to society is the same as that applied to familiar industrial processes. His test is: Does it give us what we want? Democracy, despotism, oligarchy, are viewed dispassionately as tools to be flung away if they will not serve the immediate purpose. The tendency—strongly marked among industrial workers—is to scrap any method which appears unsuitable for the job in hand.

Theorists, both democratic and aristocratic, are revolted by such an attitude. But we see it in evidence when professed democrats use mass industrial action to coerce Parliament. Democratic leaders are embarrassed, but their followers are not conscious of any inconsistency. They grasp at the most convenient tool or weapon at hand in the moment of need—as they do in the workshop. This is because they are not concerned with the “principles of democracy,” but only want to get something done. Such a view bears the authentic stamp of the workshop bench.

The completely industrialised English worker is practical, matter-of-fact, and has little use for extreme theory or indeed for theory of any kind. For militarism as advocated by Bernhardt or for pacifism as an abstract belief he has no enthusiasm. When he opposes war it is

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usually because he thinks the results are not worth the suffering involved. But if he is convinced the results are worth the effort he will fight. It is usually those who are withdrawn from the economic struggle who develop an overweening pride in the highness of their ethical outlook and talk of the "sanctity of human life," while they are often far too easily reconciled to the degradation of human life around them. With the stern conditions of the workshop struggle to survive imposed on him, the average worker finds the pacifist idea—pushed to its logical extremity of non-resistance—completely unintelligible. His quick sympathy for victims of injustice makes an "above the battle" attitude seem aloof and non-human.

The workshop way of judging each war on its merits carries with it one great drawback. In the event of war the industrial worker is largely at the mercy of those who gain his ear, for he has little or no means of checking their presentation of the case. But with the growth of labour combination—based on co-operation in the workshop—he is influenced more and more by ideas of international Labour solidarity.

The trade union type of worker and organiser has distinctive characteristics. He is tenacious, unimaginative, phlegmatic, grim in his capacity for holding on. His practical outlook makes utility the standard of his actions, material comfort the goal and power of one sort or another the means. He is convinced that the weak go down

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before the strong and is determined to be as strong as he can and give way as little as possible. He does not rely upon the ethics or goodwill of the other side. He knows that soft words and good intentions will not drive the machinery of the workshop if power is lacking. Trade unionism was fashioned in this practical school as a weapon for defensive use. When a workman gets slow or weak he is scrapped like a worn-out tool. This knowledge of harsh realities keeps him down to earth. He wants precise aims. Ultimate ends which cannot be expressed in hours, wages and conditions are of little use or interest to him.

Interest in theory leads to clear-cut dogmatism which in turn may lead to bitter conflict, but the English worker with his practical aim—his “process view” of getting something done—is more open to compromise than rigid adherents of a theory would be. Yet Max Beer, a competent observer who has spent twenty years in England, remarks in the preface to his *History of British Socialism*:

“The English intellect from its sheer recklessness is essentially revolutionary. . . But since 1688 it has been the endeavour of English statesmen and educators to impart to the nation a conservative, cautiously moving temper, a distrust of generalisation, an aversion from carrying theory to its logical conclusion. . . In times of general upheaval, however, when the dynamic forces of society are vehemently asserting them-

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selves the English are apt to throw their mental ballast overboard and take the lead in revolutionary thought and action."

The English worker's contempt of theory has undoubtedly led to the avoidance of extreme courses, but this has been where the situation has allowed each side to get something of what it wanted. Mutual accommodation has become increasingly difficult in the post-war world and when this is not possible, an absence of theory may lead directly to revolutionary action the consequences of which are ignored or unforeseen.

So far I have spoken of the underlying assumptions of working class thought and action. David Kirkwood, the Scottish engineer M.P., expressed the "process view" when at the State opening ceremony in the House of Lords which he attended on his entry to Parliament, he remarked, "We'll soon smash all this!" There was no place in his mind for traditional, ceremonial splendour. As chairman of a Clydeside workshop committee the same man voiced the "process view" when, during the war, he told Mr. Lloyd George that it was an engineer's war and that one engineer was worth fifty lawyers. The antagonism between traditional law and industrial technique was sharply expressed here.

With growing independence and education has come the formulation of opinion which bears the stamp of workshop conditions. This new stand-

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ard of life grows slowly but surely. The influence of environment and of tradition clash and gradually experience overcomes the prestige character of established beliefs. The industrial worker is recasting his values and the forcing ground for his new opinions is the factory plant. The labour thinker does not fit in with the conventional idea of the student. Men who give up their lives to speculation and thought may be inclined to dismiss his ideas with derision. Instead of a black scholastic gown he wears blue working overalls. In place of poring over books filled with thoughts of the past he bends over a machine. But just as the poet sings of "sermons in stones," so the modern worker derives ideas from machine production.

When you have a bar of iron in front of you which has to be twisted into a certain shape, then you learn to apply ideas to things. You become practical.

On that basis he forms his judgments. He tries to break down the barriers between reason and practice, thought and action. He wishes to prove the idea by the fact. Anything which cannot survive that test drops out of his consciousness. Reasoning from the facts of his observation and workshop experience, he believes that matter cannot be created or destroyed, it can only be changed. He sees the constant action and reaction between matter and its environment, but he cannot postulate any power beyond that. There is no place in his view for anything apart

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from the processes of change which he sees at work. He reasons from the facts of the factory with the same directness that his hammer falls upon his chisel. He is typical of many who are learning narrow precision in the workshop and beginning, more and more, to apply these views to politics and to life. The workshop is the school of these new utilitarians—these factory realists. And the whole pressure and influence of machine industry is on their side. The thinker in overalls may yet be the arbiter of the world.

The problems he raises demand attention for the growing pressure of such machine-made ideas, squeezed out like tooth-paste from the factory gate, is bound to have a cumulative influence.

In considering the factory utility test we must ask ourselves—What is utility? Our hideous industrial towns mar the lives of those who live in them. They are starved of beauty, art, literature, music—all the graces of life—but often they do not realise it. They may even say that these things are not useful at all. Men who have lived long in ugly surroundings grow insensitive to beauty and scorn it as being of no account. Life would be intolerable to them if they did not. But anything that makes for a fuller life is necessary and must not be left out of our catalogue of utilities. Workshop utilitarians err when they elevate narrowness and crudity to the level of a working plan of life. We must make sure we are

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not rejecting something just because we cannot see its use. To consider merely immediate necessity may involve the loss of much that is fine. And to make workshop limitations the boundary of life is far too narrow. Life is greater than the process of securing the means of life and we must be at least as concerned with its possibilities and needs as with structure and structural problems. We cannot live always in an atmosphere of scaffolding and a litter of paint-pots. When work is finished we want to do many things which cannot be explained in terms of further utility, but which make for happy and cultivated lives. The factory utilitarian may object that cultivation and happiness serve no end, produce no results. Yet all the factory work is useless if it does not help us to reach this end.

Unless the factory view of utility is revised and corrected it may succeed in spreading a horrible blight over life. Stern justice will then be meted out to those lovers of beauty who failed to protest when degrading conditions were imposed on others. Just as people become reconciled to living and working in squalor—of body and spirit—so they come to accept this as the normal and proper condition and, as unconscious victims become the apostles of ugliness, imposing it by sheer mass weight upon their fellows.

Human needs as well as mechanical perfection must be considered if the triumph of the machine

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is not to be at the expense of man. Those human needs do make themselves felt and so we get a worker's point of view, influenced but not dominated by machinery as distinct from the industrial magnate's point of view in which efficient production blots everything else out. Industrial workers are growing more conscious of the disabilities of our industrial civilisation for they bruise themselves incessantly against its harsh limitations. It is the industrial magnate who is not conscious of these limitations. His personality has been able to get expression through modern industry. He is over the machine not under it. His opinions, his methods, his practice, secure the widest publicity and adulation. They become the accepted standard of the industrial world.

Henry Ford is a typical representative of the industrial magnate view. His thought and practice reveal one strong trend of modern industry. He is the Walt Whitman of industry and his books *My Life and Work* and *To-day and To-morrow* are epic poems of large scale production.

A new industrial revolution—that of mass production—has struck America and Henry Ford is its prophet. Politicians, reformers, financiers, artists, are all called upon to bow down before the captains of industry. In the glare of the foundry and the heat of the smelting furnaces, industrial civilisation is being moulded. It rises like a Venus of burnished steel out of a flood

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of molten metal. Standing in front of these industrial marvels, listening to the purr of the motors and the everlasting chant of the mighty machines, Ford sees nothing except the grandeur of what he is doing and what may yet be done. Dazzled by the crude glory of the factory plant he overlooks the needs of human personality.

Ford stands for the industrial magnate view of life. To him the mass of men must be definitely subordinate to things. They are of use only in making things. His own reason for being in the world is to produce cheap motor cars. He does it well; but should that exhaust human possibilities? His limitations are very evident in the chapter headed "Finding the Balance of Life" (*To-day and To-morrow*). When he deals with production, with, for instance, the production of plate glass, he is magnificent. One can see that huge sheet of glass coming off the rollers, gliding along like a stream till it is cooled, cut and polished. But when he turns to art and beauty his strength vanishes—he becomes weak and aimless. He incarnates the weakness of our industrial era. Not being able to spend his whole life making motor cars Mr. Ford has to fill in the intervals. So he has purchased two wayside inns, quaint and picturesque, which he keeps in a perfect state of preservation. He grows enthusiastic over repairing an old fireplace in one of them. But when there is no job of that kind to be done, he cannot conceal his

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boredom. In his scheme of life there is no apparent place for books, music, pictures, art. When Mr. Ford handles cultural problems he is like a naked savage with a pair of trousers—he keeps them folded, creased, brushed, but he is not quite sure where they belong. Art has no essential place in his scheme of life; this art chapter is not integrated in the book. It bears the appearance of being thrown in because some people like that sort of thing.

“Our civilisation,” cries Ford proudly, “is based on power!” Yes and it is also based on men. It is not wisdom to forget this. One view builds on man, his possibilities of growth, development, of depth; the other, on a mountainous accumulation of things. And the great conflict is still undecided.

Among other enterprises Mr. Ford owns a hospital, and, as might be expected, runs it very well:

“A room may be entered only by the doctors or nurses in their professional capacities or by such guests as the patient wishes to receive. A patient is a patient, not an exhibit. . . . We take it that self-respect forms a part of the patient’s health.”

All this is so admirable that I would like to see the same principle extended to the works. Before me as I write, is an application form for employment in use at Ford’s Detroit Works. It is a lengthy document, in four sections, drawn up as if for a private detective agency. Space is

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provided for answers to nearly a hundred questions and for remarks by the investigator. The questions cover intimate personal details—habits of applicants; number of children, age, sex, earnings; home conditions; particulars of lodgers; rent; hire purchase payments; debts and the reason for them; family doctor, education and other information of a purely private and personal kind. Self-respect is also part of a workman's health and this document injures it by making an "exhibit" of him. It is unfortunate that according to the Ford plan of life one has to enter hospital before being treated as a person.

Ford explains how his business is run :

"The chassis assembling line, for instance, goes at a pace of six feet a minute, the front axle assembly line goes at one hundred and eighty-nine inches a minute. In the chassis assembly are forty-five separate operations or stations. The first men fasten four mud-guard brackets to the chassis frame; the motor arrives in the tenth operation and so on in detail. . . . The man who puts in the bolts does not put on the nut, the man who puts on the nut does not tighten it, on operation number thirty-four the budding motor gets its gasoline, it has previously received lubrication; on operation number forty-four the radiator is filled with water and on operation number forty-five, the car arrives out into John R. Street."

That is how the Ford car is made. Every

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man's job is timed, every operation is subdivided. The assembling of a motor, once the work of one man, is now done in eighty-four separate operations. Clockwork precision and unquestioning obedience are exacted. There is no place for trade unions or workshop committees in the factory. Everyone connected with the Ford industry is a servant of the Work. The Perfect Motor Car is the ideal for which Ford strives, perfect in make and material, in lightness, swiftness, and price. If to obtain this it should be necessary to cast babies in front of the juggernauts as they proceed from the factory to John R. Street, I do not believe Ford would hesitate for a moment. Neither do I think he would hesitate about jumping on the rails himself. He is a man with a single-minded devotion to an idea—the idea of efficient production. To rate the making of goods as more important than the making of money is a big advance which only needs to be supplemented by putting humanity first.

Even in the Ford industry we get hints of what might be done. Ford has set up smaller establishments in country districts. Conditions have led him to experiment with the idea of letting one man do several kinds of work. Ford speaks of men and women who have taken up farming at some of these outlying points. The Company allows them several weeks off in the busy season to attend to their farms and crops. This is a healthier, finer, more human system

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than for men to be penned up all their days doing a tiny fractional job. "We are planning," he says, "to locate industries near the mines to have interchangeable employment." Mr. Ford is a pioneer and is probably building better than he knows. His hint of interchangeable occupations may prove to be a corner-stone of the future industrial order.

In such an order Ford would function as manager to a co-operative enterprise. He would need to be supervised by a committee of practical men. He would be an admirable works' manager within those limitations. He is not a social reformer. He is not a leader or inspirer, but he is a wonderful machine. For that reason he should never be allowed to dominate other men's lives.

The non-human character of modern industrial standards is fully revealed in a booklet issued by the Ford Company, Detroit, explaining how the Ford principle of efficiency was extended from the factory to the home. A photograph is given of an untidy bedroom with a meek-looking woman listening to a Ford adviser suggesting changes in the arrangement of furniture. Another picture of a kitchen has the comment: *Education would do more lasting good than Stove Polish in this kitchen.* Education would probably make the woman resent this ill-bred, prying interference. Another room is shown with the caption: *Improvement in Home Conditions shown by Second Survey.*

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It was the business of the "Ford Adviser" to make careful examinations of these homes to decide whether the breadwinner was qualified to share in the benefits given by the firm. By financial pressure Ford could deprive his workers of privacy and independence in their home life and control the life and habits not only of the worker himself, but of his wife and children too. In country districts it has long been the custom for interfering ladies, usually too stupid to secure any prominence among people of their own social position, to worry unfortunate labourers and their families who are in a position of economic dependence. But here we have industrial serfdom sketched out for us in full outline. In this way the home becomes the annexe of the factory. Ford calls this "the willing gift of self in a personal interest and concern in the lives of men." This jargon is one of the minor burdens of the age. Industrial tyranny coats itself over with a sticky syrup of benevolence.

Because Mr. Ford has perfected an organisation for turning out cheap motor cars, he imagines, quite seriously, with an engaging yet fundamental illiteracy of outlook, that this gives him the right to interfere in the private lives of men and women. Yet obviously this does not qualify him to intrude into the home and impose his lack of taste there. A home should express something of the personalities of those within; that is what distinguishes it from an institution. But how would Mr. Ford with his factory outlook

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know that ? He sees the space outside the factory primarily as a place for parking motor cars. Clearly this view has its limitations. So when he wishes to treat people as bits of machinery—spare parts—to be periodically inspected and kept in good condition, it is time to object.

In theory and in practice Ford has expressed the view of the modern industrial magnate who is convinced of his right to rule over his fellows, and treat them as machines. He may be taken as typical of the group because, apart from certain individual peculiarities, he expresses the group view. The industrial magnate understands co-operation imposed by work, but not the conscious co-operation of men and women to whom the unavoidable routine of a factory would be unbearable unless they had a voice in its control. With a full knowledge of his own ability the industrial magnate demands schoolboy virtues from everyone in his works—duty, unquestioning obedience, hard work, loyalty. But when people grow up they demand something more. They want a share in responsibility, control. Any system which retards or prevents the development of men and women is a bad one. Even a schoolmaster is not judged by school discipline or by the facility with which his pupils gabble a repetition of facts so much as by their rate of advance. The industrial magnates do not allow for industrial maturity. They refuse to recognise workers as people in the works.

If the worker had a recognised voice in work-

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shop matters instead of merely possessing the check on the management which only his continued aggression can enforce, then the qualities of workshop loyalty, co-operation and goodwill could operate. All this would make for efficiency for the worker is not really interested in being inefficient. But it would be an efficiency springing from the worker's understanding of what had to be done and not a rigid system imposed from without, which uses him and his fellows like draughtsmen on a board. But any attempts to move in this direction have invariably met with bitter resistance from the industrial magnates. The Engineering Employers' Federation even imposed a lock-out to prevent Labour having anything to do with managerial functions. Apart from the doubtful economic wisdom of the employers' stand, the psychology of it is deplorable.

In considering the industrial magnate view it is important to note that just where it differs from the view of the advancing workers is in the emphasis it gives to the machine while labour thought gives emphasis to the man. Demands for industrial control, joint management, a voice in industry—however they are phrased and whatever the precise idea underlying them, are demands to be considered as something else besides part of the factory plant. They are valuable because they indicate that humanity cannot be crushed out by machinery. And those people who seek to merge in one adulatory chorus of machine praise the view of the industrial mag-

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nate that the machine should dominate and the view of the workers that they should control the machine must realise, that although machine influence is evident in each, these two views are completely opposed.

CHAPTER IX

SHAPING THE FUTURE

THE influence of machine industry is re-casting our values, foreshadowing ever more changes as it grows older and gathers the masses in its sweep and momentum. It brings to a sharp issue the conflict between those who want to humanise industry and those who want to mechanise humanity.

Industrial psychology—itself a product of modern industry—is only gradually awakening to the importance of this conflict. There have been three stages in the scientific approach to industry. At first the experts began with the workshop and were restricted to it. These were the days of scientific management when the workman was frankly regarded as subordinate to his work. The work was studied, split up into a series of operations which became the basis for repetition work and motion study. At this stage a knowledge of human needs was considered as quite irrelevant. The theory was that a man must fit himself to the work and the speed required or else get out of the workshop. The industrial misfit was regarded simply as a waste product which

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must be scrapped, together with the weaker, worn-out human parts which could not stand the increased strain. Whether this strain was good for any of the workers, even the strongest, none of the experts knew or cared. Can an indifferent human shovel be made as profitable as a good steam shovel?—that was the question which these experts tried to solve on purely mechanical lines.

But it was soon found that even from the restricted standpoint of taking the worker as a productive unit, something more had to be done. Certain facts of psychology were stumbled on in the course of the expert's activities. By means of industrial subdivision, restriction of initiative and so on, the scientific managers reduced interest in work and came to rely solely upon the acquisitive instinct as a stimulus to effort. As interest diminished and fatigue increased, they found they had to pay some attention to the needs of the workers. When the workers were studied, the second stage in the scientific regulation of industry began. Rest pauses, more harmonious conditions, workshop canteens, etc., were provided to maintain physical fitness and vigour. Inevitably the experts were led to take an interest in affairs outside the workshop. Sports clubs and similar activities were initiated in the effort to avoid those harmful reactions in leisure time which interfered with production. The rational use of leisure is quite a feature of the schemes taken up by such firms as Cadbury, Lever, and

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Ford. Here we see industrial psychology entering into the lives and leisure of the workers apart from the factory, but always with the dominant idea of regulating their lives in the interest of production. Once the principle of rest pauses has entered the scheme, then the time between the worker leaving work and starting again becomes a legitimate field for experiment and regulation for this is only a longer "rest-pause."

We may classify then, first, the industrial study that was confined to the workshop; second, that which reached beyond it. Developing from this is a third school—still in process of formation—which considers how work can best be fitted into the life of man. The factory or the productive process has been for so long the centre of study that it is hard for many to realise that the leisure time of the worker is as important as his worktime, and should not be sacrificed in the interest of the other. Evils of monotony, repetition and speeding up are now being discussed in the same way as lead poisoning and other harmful effects of injurious industrial processes, with a view to their elimination. These newer psychologists contend that whatever runs counter to the healthy instinctive tendencies of the workers, which sets up conflict, irritation and fatigue, is to be condemned as much as processes which are physically harmful. While it is still usual to study the worker's leisure time pursuits in order to eliminate whatever interferes with industrial efficiency, it is quite a new con-

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ception that industry should be studied in order to eliminate whatever produces harmful reactions in the worker's life. Those who accept man in place of work as the centre of their study and effort realise that their concern is to safeguard human personality. Anything that will make industry efficient for the purposes of life and so make people healthier and happier comes, if we accept this view, within the scope of industrial psychology even if it has no bearing on more rapid production.

Unfortunately, industrial psychology is to-day very largely an adjunct to the works, governed by business rather than human considerations and under the influence of the dominant machine outlook. Because of this we frequently find the psychologists camouflaging proposals which are obviously of human value and which should be advocated on these grounds by arguing that it is "good business" to treat employees well, that it "improves production," and so on. Such arguments tend to strengthen the prevailing idea that business or production constitutes the final standard by which everything else must be adjusted.

Since Taylor's early efforts to turn workers into better machines it has been discovered that their nerves, their instincts and their plaguey reactions interfere with "efficiency." In fact, it appears as if the Creator did not sufficiently consider their high destiny as machine-tenders when He made them with all those unaccountable im-

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pulses which so annoy the efficiency engineer. We might almost convict Him of inefficiency in production. But seeing that people are as they are, the industrial expert has had, grudgingly enough, to make certain allowances. He found he could not just gear the workers as machines and leave them to run. It was a great discovery when he found that life could not be shut off into hermetically sealed compartments and that abnormal workshop conditions destroyed the balance of life. But the industrial expert is usually narrowed down to purely commercial considerations. He too has been departmentalised and cannot approach the problem from the broad standpoint of human need.

Scientific management has been severely criticised by the advocates of industrial psychology who say that the earlier school of efficiency engineers worked on purely mechanical principles which cannot be satisfactorily applied to humanity. But the industrial psychologists have not yet shown that they work on any fundamentally different idea from that of the efficiency school which they condemn. Their aim is still to fit men to industry rather than to fit industry to men. The breakdown of apprenticeship demands that something should be done to ensure all-round training for the young worker and so prevent him being pushed into a hopeless rut early in life. But, because this important matter has no commercial significance, industrial psychologists leave it alone.

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The industrial psychologist is called in as a doctor by the employer to treat industry from the standpoint of production. His activities are limited by the task which has been allotted to him, the task of finding out how more wealth can be produced. That this may involve a further lopsidedness for the worker is a matter outside his scope, unless it has a harmful effect on production. Industrial psychology should concern itself with the worker as a man, the full development of all his powers and how far modern industry hinders this. As yet practically no work has been done on these lines. But such a point of view would mark a complete change of outlook, not merely an improvement of method, as compared with "efficiency experts" in the past. In certain florists' shops, dwarf trees are displayed. From the point of view of dealers and customers, these trees satisfy requirements. But the tree's requirement is growth, which is deliberately prevented. The industrial psychology of to-day by considering industry before man opposes no special barrier to the dwarfing of humanity.

Industrial psychology, on its most human side, finds expression in welfare work. But welfare work is also limited to a static view of industry. It cannot explore the possibilities of industrial harmony and human well-being in a drastically re-organised industrial order. In effect the employer says to his welfare workers: "How can I keep my employees quiet and contented so that my work can go on without trouble?" The

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welfare worker is circumscribed by his position and by the limitations of the problem set before him. His short cuts to industrial harmony are necessarily superficial. He cannot offer suggestions of a far-reaching character. All he can do is to help people to make the best of present conditions.

The Great Factory and the Great State are alike oppressive in their relation to the individual. Modern industry produces a feeling of numbness in the routine worker. Indifference to industrial problems results, an indifference rising out of despair. The man is afraid to step out of his well-worn rut and face the complexities of the world.

"Cultivate your garden!" cried Carlyle, when he poured contempt upon the idea of a solitary elector influencing affairs. "Mind your machine!" cries the industrial pessimist, "Stay in your rut!" This stultifying attitude is imposed politically and industrially upon those who are less alert and tenacious.

To remedy this it is necessary to foster the sense of personal responsibility both in industry and social matters. Responsibility awakens interest, involves mental effort, and develops reasoning powers. The more points at which an individual can touch life, the more he understands his relation to the world about him. If he strives for the realisation of aims which he feels are worthy, he develops as a human being. In industry it is important that the worker should have variety of occupation, scope for initiative,

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training in responsibility and control. He needs new tasks to accomplish with his hands, new surroundings upon which his eyes can rest with satisfaction and a new status around which his mind can play and develop.

The ordinary man has not the time or the energy to work out the ramifications of this huge society of which he is such a tiny atom so he is content to let things drift—whatever the consequences for him. We cannot get away from the modern State and to talk of returning to the Greek City model is as utopian as the idea of returning to handicraft. Schemes of functional representation and ideas of devolution are both attempts to create a group based on neighbourhood, trade, common need, large enough for a group feeling to develop and small enough for each individual to play an effective part. Along such lines converges the attack on the State and the Factory which alike give the individual such a sense of impotency.

Parallel with this development we have ideas of industrial self-government, schemes of workers' control. Both politically and industrially the need for awakening individual initiative and harnessing it to social ends is being perceived. The ideas and principles underlying such schemes differ widely. It is necessary to differentiate between schemes of co-partnership and schemes of encroaching control, the first assuming broadly the permanence of existing conditions of ownership, the other working towards a funda-

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mental change. Yet both these approaches are attempts to adjust industry to the human needs of the workers and in their inception will probably take the same line. Given a more direct participation of the worker and citizen in industrial and political affairs we shall begin to re-shape our political institutions and our industry so as to secure the utmost amount of self-expression possible during work and leisure hours. Group control in industry would stimulate and widen interests, generate enthusiasm and arouse initiative. It would liberate creative power and counteract the harmfulness of mind and body-destroying routine.

Society and the individual would gain more in the long run by studying the needs of human nature and introducing changes into the industrial system to make industry safe for humanity. But from the writings of industrial experts one would never guess that our generation is confronted with so gigantic a task. They bend their energies to altering the shape of a lever so that it may be pressed over more smartly, to inventing a new "progress card" which will show at a glance if the worker in any department has failed to function perfectly.

The size of the industrial unit of the future will be determined by practical considerations, not by any abstract theory, but whether it is convenient to have large or small undertakings, the principle of individual participation in control can be applied. What is lacking is not the

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power but the will. During the war years the workers gained a practical measure of control in many workshops. Although they have lost this since, it serves to indicate what is possible.

Industrial magnates of the Ford and Leverhulme type are definitely opposed to the workers having any voice in industrial matters. In the book, *Viscount Leverhulme*, by his son, we are told how in his profit-sharing, co-partnership scheme, he carefully guarded against workers, as workers, having any voice in the business. This is the familiar industrial magnate view which assumes workers to be robots.

In *Liberal Points of View*, J. M. Keynes, writing on "Liberalism and Industry," tells us that the State must be prepared to make all kinds of industrial experiments such as sharing control with private firms, and that it must play a far larger and more important part in industry. Such a development is hardly possible without labour securing a greater measure of control. Many of the more thoughtful workers object to private ownership in industry, because they see that their lives are subject to forces outside their control. They have to wear the shoes but they may not say where the shoe pinches.

The necessity for some form of workers' control is being increasingly recognised outside the workers' ranks. Following the National Strike, Viscount Grey made a great appeal, addressed primarily to employers, pleading for the re-organisation of industry on the basis of Labour

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being given a share in the management. He said :

“ Profit-sharing by itself will always be looked upon as a sort of bonus or bribe to keep Labour quiet. It will not give that sense of partnership which can only be given by sharing in the management. That is what real partnership means.”

It is clear that if industrial control be granted to the workers, then a measure of ownership will be required too. When Labour begins to manage industry for other people it will want to manage industry for itself. Such schemes may be advocated as imposing a permanent barrier to Labour aspirations for full ownership and control in industry. But those who imagine that this result will be attained are doomed to disappointment. In the future the question of industrial control must be considered on its merits—will it work? Does it give results?—and Labour will not forfeit its right of claiming a larger share.

Sometimes it is assumed that, in every attempt to set up machinery in the workshop to deal with industrial conditions, the workers' side automatically weakens and looks at things from the standpoint of the management. This is often the case when there is patronage on the part of the firm. All who have been in the workshop know only too well the silent forces of intimidation that are brought to bear. Those who express the workers' point of view are engaged in a ceaseless struggle, they must be tireless and watchful,

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combining the reasonableness of the statesman with the flaming indignation of the labour pioneer. The dangers of these joint committees must be faced. Conditions determine the lines on which the conflict must go. And it is always best to get alongside the enemy and thrash out opposing viewpoints rather than spend time in empty declamation. On every practical working scheme inside every workshop where an opportunity is given to the workers to influence the way in which the industry is run, workers need the most resolute, independent and reasonable champions of their side. Every time the workers get a voice in workshop matters it should stimulate them to increase their influence and to press for still more control. Effective control has always to be struggled for and the extent to which it is secured indicates the relative strength of each side. And the measure of control exercised by the workers is the measure of their treatment as human beings.

Industrial peace is a subject upon which there is probably more nonsense talked than upon anything else. It is so easy at a Mayoral banquet or a Rotarian lunch to speak of the desirability of establishing peaceful relations in industry. By the time dessert is served all the industrial problems of the country have been solved. It is when we turn to the industrial towns—to the workshops—that we see there is more in the problem than platitudes.

In order to bring the question down to practi-

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ality I will take the actual case of an engineering workshop in the early days of the war. At this time many unskilled and semi-skilled workmen were being brought in; trade union conditions that had long governed workshop relations were being abandoned. Older workmen, who were intensely conservative, desired to retain customs with which they were familiar. Here was an exceptionally difficult time with all sorts of questions and innovations which might easily have led to industrial trouble. Yet conflict was avoided. Each shop in the factory—a large one—had its shop steward; these combined into a Works' Committee. Any grievance on the workmen's side was immediately reported to the committee through the shop steward in each department and the committee settled the questions with the management. A particularly difficult question was the introduction of unorganised, unskilled labour into the works. It was dealt with in this way. Every machine in the factory was "rated," i.e., it was agreed that whoever worked these machines should be paid at a certain rate. In the morning, when new men were starting work, the shop steward would go round the shop with the foreman or manager, and see that the agreed rate of wages was being paid. If the man was not skilled enough to do the work straight off, some adjustment for a learning period might be made. In this way the interests of the men in the shop were safeguarded—their rates and conditions were not lowered—and so

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problems which might have led to innumerable little disputes were peacefully settled. But industrial peace was not maintained by pretending that there were no points of difference or by endeavouring to smooth them over with words. It was by a recognition of the real points in dispute and by mutual accommodation that peace was maintained.

At the beginning this called for concessions from the employer. He had to concede a measure of workshop control to the men. And there is no other way of securing industrial peace in the future. Either the employer must allow the workmen to settle the differences inside the workshop or else he forces those conflicts outside. There is no more futile figure than the employer who talks loudly about the benefits of industrial peace, but who resolutely refuses to allow his workers the slightest voice in the modification of conditions that lead straight to strife.

Employers may object that they only get industrial peace by means of concessions. That is true. How else do they expect to get it? If it is worth anything to them, it is worth making concessions for. Industrial peace in itself is not an object for which the workers should be expected to make sacrifices. It is those who stand for present conditions of ownership and control who should be most anxious to preserve peace. Those who want a change have obviously not the same incentive. Ninety per

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cent. of industrial peace talk leads to nothing, because by industrial peace is meant keeping things as they are, which leaves conditions untouched that make for conflict. It is a peace of submission that the industrial magnates have in mind. But those who feel the need for reconstituting industrial society are not likely to abandon their efforts. Workers do not base their argument for encroaching industrial control on an exaggerated idea of the value or possibility of industrial peace. Peace in industry will only be secured by industrial justice. And it is only by peaceful concessions of a measure of justice that conflicts may be avoided.

Given a normal course of humdrum development the method of encroaching control seems most likely to satisfy the aspirations of the worker for a human footing in industry. If that normal development is interfered with by catastrophic or revolutionary changes, the experience which the workers will have gained in workshop management and in coping with practical factory problems will be invaluable. Consequently, whether we visualise a period of peaceful development or of revolutionary change, the policy of gradual encroachment in the workshop is a sound and hopeful one. By putting it within the power of the workers to remove workshop irritations it helps to preserve peace in industry and it links that peace with progress and a growing freedom. If employers are ready to give such a concession as a real voice in management, it will un-

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doubtedly ease the tension of this period of social transition.

Every line of thought connected with industrial society converges on the workshop. The workshop is the vortex of the conflict centring round the position of man in machine civilisation. A great economic thinker of the nineteenth century has written :

“Machinery, gifted with the wonderful power of shortening and fructifying human labour, we behold starving and overworking it. The new-fangled sources of wealth, by some strangeweird spell are turned into sources of want. The victories of art seem bought by loss of character. At the same pace that man masters nature, man seems to become enslaved to other men or to his own infamy. Even the pure light of science seems unable to shine but on a dark background of ignorance. All our invention and progress seem to result in endowing material forces with intellectual life and in stultifying human life into a material force. . . We know that if the new-fangled forces of society are to work satisfactorily, they need only be mastered by new-fangled men—and such are the working men. They are as much the creation of modern times as machinery itself.”

In discussing industrial society we are compelled to devote time and thought to the view of the industrial magnates who believe in the eternal enslavement of labour to the machine; to those scientific managers and industrial

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psychologists who, sometimes reluctantly, have fitted in with this idea of the crucifixion of man. But we are specially concerned with the counter-tendency which rises from the factories themselves. And we may see apart from the restricted workshop arena a whole stream of thought finding expression in art, in literature, in drama, which stresses human values—the need for freedom, for personal expression and for beauty.

~~SECRET~~
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