

### III

#### *The American Crisis*

*"What are the limits of human faculty in various directions?"*

*"By what diversity of means, in the differing types of human beings, may the faculties be stimulated to their best result?"*

*"These two questions dominate the whole problem of individual and national education. We need a topography of the limits of human power, similar to the chart which oculists use in the field of human vision. . . .*

*"The limits of power must be limits that have been realized in actual persons, and the various ways of unlocking the reservoirs of power must have been exemplified in individual lives. . . . So here is a program of concrete individual psychology. . . . It is replete with interesting facts, and points to practical issues superior in importance to anything we know."*

I first heard these words from the lips of William James, as he delivered his famous address on "The Energies of Men" before the American Philosophical Association at Colum-

bia University, December 28, 1906. Though twenty-seven years have slipped away since that day, the thought then and there implanted has never withered in my memory nor lost its amazing fertility. A sorry comment it is upon the scientists who heard James then that not one of them was moved to launch inquiries that might answer one of the two central questions. True, here and there an isolated experimenter has brought to light certain important facts about human endurance, but the systematic attack upon the entire technique of energy still remains to be planned and carried out. •

America was, I suspect, too deeply engrossed in the conquest of physical energies back in 1906. There were too many fascinating (and manifestly lucrative) discoveries to be made in physics, chemistry, engineering and business! The mastery of human nature seemed a remote, perhaps even academic problem to men who hunted gold mines, flung tracks across the continent, and tapped oceans of petroleum. But as time has passed, we have slowly come to understand that, now as always, man is the central issue of mankind. We have discovered also that, in our machine age, man is largely a creature of his job; his energies are molded to the demands of machines and office staffs and sales policies. Hence the highest social obligation of the psychologist would appear to be that of training men to manage their energies for the sake of managing themselves, first as

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workers and then in a larger manner as citizens. The psychologist's contribution to the great problem of fitting mankind to its physical and personal energies has been tiny thus far; the full significance of James's advice seems to have gone lost.

Engineers have contributed ten thousand times more than psychologists to the great art of adjusting workers to jobs. So it will always be, too; for the psychologist undertakes to select and train men for specific tasks, in which certain processes and machines are accepted as factors of the problem, whereas the engineer, confronted with maladjusted toilers in a factory, attacks the problem by remodelling the equipment and methods so that they impose fewer and smaller strains upon human nature. Let us look at a few cases.

Here is a great steel plant. It has a rivetting department where the din of steam hammers and the compressed air rivet hammers shatter the nerves of workers with sensitive ears. The factory summons a psychologist to sort men for work in this inferno. The psychologist tests applicants to find the few who are not perturbed by the terrific metallic noises. He selects perhaps a few partially deaf people along with others of a peculiarly dull temperament; and his task is well done. The job has, as usual, determined the worker.

But the intelligent factory summons at the same time an engineer to work out methods

of softening the noises of rivetters. In time the engineer submits designs of mufflers, shock absorbers, and finally electric spot welders. These are tried out and eventually installed. Now the din is over forever. No longer need the vocational psychologist hunt for half-deaf workers and dull-spirited fellows. The engineer adjusts the job to the worker. And this is human progress.

Look again. Now we see a railway company hunting for locomotive engineers of the highest reliability. They must have exceedingly keen vision, to detect track signals on foggy nights; superior motor responses, so as to handle levers and valves at top speed in an emergency; steady nerves and ears that are not rasped by the screech and thunder of the equipage. The psychologist devises tests to pick such high-grade workers out from the throng of applicants. Meanwhile the engineer invents automatic safety controls which stop trains that overrun signals set against them; now it is of no particular importance that an engineer see through night murk, for his train is handled by mechanical aids. True, we should not care to have the company employ blind engineers. But the high selective value of superior eyesight has been lost.

Turn almost anywhere in modern industry and office management. Always the same spectacle confronts you. The imperfections of our instruments and methods give the voca-

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tional psychologist a temporary task, whose importance we need not belittle. He must select men to fit the imperfect machines and methods as long as these survive; but the engineer tackles the larger and the forward-looking puzzle of transcending the flaws of equipment and thereby transforming jobs to suit men. So, you see, the psychologist is always engaged in finding and training men to get along with our imperfect industrial paraphernalia, while the engineer is ever seeking to abolish all hard, mean, degrading and otherwise undesirable jobs by finding better devices for doing the same work.

• This is most unfortunate, from the psychologist's own personal point of view. But he can do nothing about it, for he happens to be working on assignments which are, in their very nature, minor and transient. Training for a specific job may prove valuable for less than a year. A new machine may come from some engineer's mind and in a twinkling make useless all of the earlier dexterities. Thus recently in the textile field: the standard machines for making underwear were, only two or three years ago, superseded by a new kind which requires less energy, less dexterity, and less intelligence on the part of the operator, while increasing the output by nearly one-half.

Most vocational education, as developed by psychologists in association with superintendents, is doomed to become a series of magnificent futilities, not through the failure of the

psychologists but rather as a result of technological progress, which is now causing, for instance, carpenters, masons, bricklayers, and house painters to become obsolete, while tomorrow's technique of factory-made dwellings brings in new occupations and minimal dexterities.

Is there any useful domain left open, then, for psychologists who take seriously the problem of human energies? Yes. Outside of narrowly technological jobs there spreads the larger and richer expanse of personal ambitions, creative effort, and sheer living. Strange as it may seem, only a small fraction of the ordinary man's energies can be used on his job nowadays; hence the science and techniques of energy suggested by James must arise around other issues and interests than those of vocational education. What are these other foci? A glance at the scene unfolded in 1933 reveals them clearly.

During the next ten years we Americans must learn new ways of work and living. At least 10,000,000 of us who have been lolling along in white-collar jobs must limber up the old biceps and get down to brawn (maybe at only a dollar a day and board). Fully 15,000,000 more of us lately in some field of skilled labor must seek new tasks demanding somewhat different dexterities. Maybe as many as 10,000,000 of us who have passed our forty-fifth year will have to drop out of the workaday world to make way for younger, more strenuous toilers. And an-

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other 15,000,000 of us will be compelled by law to ease up, being delivered by Federal law from the forty-four- or forty-eight-hour working week; for, as these lines are being written, the National Industrial Recovery Administration is setting up shorter working hours than anybody would have dreamed of ten years ago.

What a confused situation! Millions being burdened more heavily, while other millions slacken their pace! Millions shifting to new jobs, while other millions are ousted from all jobs! Plainly no single patten of advice can be doled out to all of these people promiscuously. And yet, underneath all differences of fate, can we not see a general practical problem? *Must not all these millions reorganize their energies from the bottom up in order to succeed and be happy?* Must not the pattern of the day's work be redesigned? Must not those who have been polishing swivel chairs perfect their large muscles for heavy labor? Must not those who lose their jobs while they still bubble over with energy find some fresh outlets in hobbies or in sheer play? Must not those who shift from one skill to another transform their hands and fingers and eyes so as to fit the new jobs? Yes indeed! Every person caught in the stupendous social-economic revolution must face squarely the hard problem of tapping, controlling, and utilizing his personal energies. To solve it, in most cases, almost every

nerve and muscle must be reeducated. And it is best solved if the greatest possible economy of energy output, relative to accomplishment, is achieved. To get the most for the least is the first rule of intelligence.

Hence this little book. Hence, too, its peculiar design. It is not a treatise on health, yet it brings up the matter of health over and over again. It is not a discourse on diet, yet it recurs to food with monotonous persistence. It is not a sermon on physical culture, yet it covers many matters of muscular exercise and control. It is not a textbook on mental hygiene, yet it deals with a score of psychological phenomena which are often discussed by psychiatrists and psychoanalysts. It is not a book on morals, yet it encroaches strangely upon the prerogatives of the preacher. Why this queer cross-section of so many fields usually held apart? Simply because we are concerned with the Art of Work. In whatever form work is done there must be a technique of efficiency. There must be some method of making the least energy go furthest in digging a hole in the ground, and another method for the conducting of calculations in higher mathematics. In each case, again, there must be three grand divisions of technique, which we may call the technique of the power plant, the technique of the transmission lines, and the technique of the terminal workshop. All work involves power storage, suitable power

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distribution, direct, well-insulated lines to the point where work is finally to be done; the best possible upkeep of the entire mechanism, and careful choice of work, which must be suited to the capacity of the equipment.