



# THE CONQUEST OF BREAD

PETER KROPOTKIN

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*translated by*  
CHAPMAN AND HALL



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## PREFACE

One of the current objections to Communism, and Socialism altogether, is that the idea is so old, and yet it has never been realized. Schemes of ideal States haunted the thinkers of ancient Greece; later on, the early Christians joined in communist groups; centuries later, large communist brotherhoods came into existence during the Reform movement. Then, the same ideals were revived during the great English and French Revolutions; and finally, quite lately, in 1848, a revolution, inspired to a great extent with Socialist ideals, took place in France. “And yet, you see,” we are told, “how far away is still the realization of your schemes. Don’t you think that there is some fundamental error in your understanding of human nature and its needs?”

At first sight this objection seems very serious. However, the moment we consider human history more attentively, it loses its strength. We see, first, that hundreds of millions of men have succeeded in maintaining amongst themselves, in their village communities, for many hundreds of years, one of the main elements of Socialism—the common ownership of the chief instrument of production, the land, and the apportionment of the same according to the labour capacities of the different families; and we learn that if the communal possession of the land has been destroyed in Western Europe, it was not from within, but from without, by the governments which created a land monopoly in favour of the nobility and the middle classes. We learn, moreover, that the medieval cities succeeded in maintaining in their midst, for several centuries in succession, a certain socialized organization of production and trade; that these centuries were periods of a rapid intellectual, industrial, and artistic progress; while the decay of these communal institutions came mainly from the incapacity of men of combining the village with the city, the peasant with the citizen, so as jointly to oppose the growth of the military states, which destroyed the free cities.

The history of mankind, thus understood, does not offer, then, an argument against Communism. It appears, on the contrary, as a succession of endeavours to realize some sort of communist organization, endeavours which were crowned here and there with a partial success of a certain duration; and all we are authorized to conclude is, that mankind has not yet found the proper form for combining, on communistic principles, agriculture with a suddenly developed industry and a rapidly growing international trade. The latter appears especially as a disturbing element, since it is no longer individuals only, or cities, that enrich themselves by distant commerce and export; but whole nations grow rich at the cost of those nations which lag behind in their industrial development.

These conditions, which began to appear by the end of the eighteenth century, took, however, their full development in the nineteenth century only, after the Napoleonic wars came to an end. And modern Communism has to take them into account.

It is now known that the French Revolution, apart from its political significance, was an attempt made by the French people, in 1793 and 1794, in three different directions more or less akin to Socialism. It was, first, *the equalization of fortunes*, by means of an income tax and succession duties, both heavily progressive, as also by a direct confiscation of the land in order to subdivide it, and by heavy war taxes levied upon the rich only. The second attempt was a sort of *Municipal Communism* as regards the consumption of some objects of first necessity, bought by the municipalities, and sold by them at cost price. And the third attempt was to introduce a wide *national system of rationally established prices of all commodities*, for which the real cost of production and moderate trade profits had to be taken into account. The Convention worked hard at this scheme, and had nearly completed its work, when reaction took the upper hand.

It was during this remarkable movement, which has never yet been properly studied, that modern Socialism was born—Fourierism with L'Ange, at Lyons, and authoritarian Communism with Buonarroti, Babeuf, and their comrades. And it was immediately after the Great Revolution that the three great theoretical founders of modern Socialism—Fourier, Saint Simon, and Robert Owen, as well as Godwin (the No-State Socialism)—came forward; while the secret communist societies, originated from those

of Buonarroti and Babeuf, gave their stamp to militant, authoritarian Communism for the next fifty years.

To be correct, then, we must say that modern Socialism is not yet a hundred years old, and that, for the first half of these hundred years, two nations only, which stood at the head of the industrial movement, i.e., Britain and France, took part in its elaboration. Both—bleeding at that time from the terrible wounds inflicted upon them by fifteen years of Napoleonic wars, and both enveloped in the great European reaction that had come from the East.

In fact, it was only after the Revolution of July, 1830, in France, and the Reform movement of 1830–1832 in this country, had begun to shake off that terrible reaction, that the discussion of Socialism became possible for a few years before the revolution of 1848. And it was during those years that the aspirations of Fourier, St. Simon, and Robert Owen, worked out by their followers, took a definite shape, and the different schools of Socialism which exist nowadays were defined.

In Britain, Robert Owen and his followers worked out their schemes of communist villages, agricultural and industrial at the same time; immense cooperative associations were started for creating with their dividends more communist colonies; and the Great Consolidated Trades' Union was founded—the forerunner of both the Labour Parties of our days and the International Workingmen's Association.

In France, the Fourierist Considérant issued his remarkable manifesto, which contains, beautifully developed, all the theoretical considerations upon the growth of Capitalism, which are now described as “Scientific Socialism.” Proudhon worked out his idea of Anarchism and Mutualism, without State interference. Louis Blanc published his “Organization of Labour,” which became later on the programme of Lassalle. Vidal in France and Lorenz Stein in Germany further developed, in two remarkable works, published in 1846 and 1847 respectively, the theoretical conceptions of Considérant; and finally Vidal, and especially Pecqueur, developed in detail the system of Collectivism, which the former wanted the National Assembly of 1848 to vote in the shape of laws.

However, there is one feature, common to all Socialist schemes of that period, which must be noted. The three great founders of Socialism who wrote at the dawn of the nineteenth century were so entranced by the wide horizons which it opened before them, that they looked upon it as a new

revelation, and upon themselves as upon the founders of a new religion. Socialism had to be a religion, and they had to regulate its march, as the heads of a new church. Besides, writing during the period of reaction which had followed the French Revolution, and seeing more its failures than its successes, they did not trust the masses, and they did not appeal to them for bringing about the changes which they thought necessary. They put their faith, on the contrary, into some great ruler, some Socialist Napoleon. He would understand the new revelation; he would be convinced of its desirability by the successful experiments of their phalansteries, or associations; and he would peacefully accomplish by his own authority the revolution which would bring well-being and happiness to mankind. A military genius, Napoleon, had just been ruling Europe. Why should not a social genius come forward, carry Europe with him and translate the new Gospel into life? That faith was rooted very deep, and it stood for a long time in the way of Socialism; its traces are even seen amongst us, down to the present day.

It was only during the years 1840–48, when the approach of the Revolution was felt everywhere, and the proletarians were beginning to plant the banner of Socialism on the barricades, that faith in the people began to enter once more the hearts of the social schemers: faith, on the one side, in Republican Democracy, and on the other side in *free* association, in the organizing powers of the workingmen themselves.

But then came the Revolution of February, 1848, the middle-class Republic, and—with it, shattered hopes. Four months only after the proclamation of the Republic, the June insurrection of the Paris proletarians broke out, and it was crushed in blood. The wholesale shooting of the workingmen, the mass deportations to New Guinea, and finally the Napoleonic coup d'état followed. The Socialists were prosecuted with fury, and the weeding out was so terrible and so thorough that for the next twelve or fifteen years the very traces of Socialism disappeared; its literature vanished so completely that even names, once so familiar before 1848, were entirely forgotten; ideas which were then current—the stock ideas of the Socialists before 1848—were so wiped out as to be taken, later on, by our generation, for new discoveries.

However, when a new revival began, about 1866, when Communism and Collectivism once more came forward, it appeared that the conception as to the means of their realization had undergone a deep change. The old faith in

Political Democracy was dying out, and the first principles upon which the Paris workingmen agreed with the British trade-unionists and Owenites, when they met in 1862 and 1864, at London, was that “the emancipation of the workingmen must be accomplished by the workingmen themselves.” Upon another point they also were agreed. It was that the labour unions themselves would have to get hold of the instruments of production, and organize production themselves. The French idea of the Fourierist and Mutualist “Association” thus joined hands with Robert Owen’s idea of “The Great Consolidated Trades’ Union,” which was extended now, so as to become an International Workingmen’s Association.

Again this new revival of Socialism lasted but a few years. Soon came the war of 1870–71, the uprising of the Paris Commune—and again the free development of Socialism was rendered impossible in France. But while Germany accepted now from the hands of its German teachers, Marx and Engels, the Socialism of the French “forty-eighters” that is, the Socialism of Considérant and Louis Blanc, and the Collectivism of Pecqueur—France made a further step forward.

In March, 1871, Paris had proclaimed that henceforward it would not wait for the retardatory portions of France: that it intended to start within its Commune its own social development.

The movement was too short-lived to give any positive result. It remained communalist only; it merely asserted the rights of the Commune to its full autonomy. But the working-classes of the old International saw at once its historical significance. They understood that the free commune would be henceforth the medium in which the ideas of modern Socialism may come to realization. The free agro-industrial communes, of which so much was spoken in England and France before 1848, need not be small phalansteries, or small communities of 2,000 persons. They must be vast agglomerations, like Paris, or, still better, small territories. These communes would federate to constitute nations in some cases, even irrespectively of the present national frontiers (like the Cinque Ports, or the Hansa). At the same time large labour associations would come into existence for the inter-communal service of the railways, the docks, and so on.

Such were the ideas which began vaguely to circulate after 1871 amongst the thinking workingmen, especially in the Latin countries. In some such organization, the details of which life itself would settle, the labour circles saw the medium through which Socialist forms of life could find a much



easier realization than through the seizure of all industrial property by the State, and the State organization of agriculture and industry.

These are the ideas to which I have endeavoured to give a more or less definite expression in this book.

Looking back now at the years that have passed since this book was written, I can say in full conscience that its leading ideas must have been correct. State Socialism has certainly made considerable progress. State railways, State banking, and State trade in spirits have been introduced here and there. But every step made in this direction, even though it resulted in the cheapening of a given commodity, was found to be a new obstacle in the struggle of the workingmen for their emancipation. So that we find growing amongst the workingmen, especially in Western Europe, the idea that even the working of such a vast national property as a railway-net could be much better handled by a Federated Union of railway employees, than by a State organization.

On the other side, we see that countless attempts have been made all over Europe and America, the leading idea of which is, on the one side, to get into the hands of the workingmen themselves wide branches of production, and, on the other side, to always widen in the cities the circles of the functions which the city performs in the interest of its inhabitants. Trade-unionism, with a growing tendency towards organizing the different trades internationally, and of being not only an instrument for the improvement of the conditions of labour, but also of becoming an organization which might, at a given moment, take into its hands the management of production; Cooperation, both for production and for distribution, both in industry and agriculture, and attempts at combining both sorts of cooperation in experimental colonies; and finally, the immensely varied field of the so-called Municipal Socialism—these are the three directions in which the greatest amount of creative power has been developed lately.

Of course, none of these may, in any degree, be taken as a substitute for Communism, or even for Socialism, both of which imply the common possession of the instruments of production. But we certainly must look at all these attempts as upon *experiments*—like those which Owen, Fourier, and Saint Simon tried in their colonies—experiments which prepare human thought to conceive some of the practical forms in which a communist society might find its expression. The synthesis of all these partial experiments will have to be made some day by the constructive genius of

some one of the civilized nations. But samples of the bricks out of which the great synthetic building will have to be built, and even samples of some of its rooms, are being prepared by the immense effort of the constructive genius of man.

BRIGHTON.  
January, 1913.

# **THE CONQUEST OF BREAD**

# I

## OUR RICHES

### I

The human race has travelled a long way, since those remote ages when men fashioned their rude implements of flint and lived on the precarious spoils of hunting, leaving to their children for their only heritage a shelter beneath the rocks, some poor utensils—and Nature, vast, unknown, and terrific, with whom they had to fight for their wretched existence.

During the long succession of agitated ages which have elapsed since, mankind has nevertheless amassed untold treasures. It has cleared the land, dried the marshes, hewn down forests, made roads, pierced mountains; it has been building, inventing, observing, reasoning; it has created a complex machinery, wrested her secrets from Nature, and finally it pressed steam and electricity into its service. And the result is, that now the child of the civilized man finds at its birth, ready for its use, an immense capital accumulated by those who have gone before him. And this capital enables man to acquire, merely by his own labour combined with the labour of others, riches surpassing the dreams of the fairy tales of the *Thousand and One Nights*.

The soil is cleared to a great extent, fit for the reception of the best seeds, ready to give a rich return for the skill and labour spent upon it—a return more than sufficient for all the wants of humanity. The methods of rational cultivation are known.

On the wide prairies of America each hundred men, with the aid of powerful machinery, can produce in a few months enough wheat to maintain 10,000 people for a whole year. And where man wishes to double his produce, to treble it, to multiply it a hundredfold, he *makes* the soil, gives to each plant the requisite care, and thus obtains enormous returns.

While the hunter of old had to scour fifty or sixty square miles to find food for his family, the civilized man supports his household, with far less pains, and far more certainty, on a thousandth part of that space. Climate is no longer an obstacle. When the sun fails, man replaces it by artificial heat; and we see the coming of a time when artificial light also will be used to stimulate vegetation. Meanwhile, by the use of glass and hot water pipes, man renders a given space ten and fifty times more productive than it was in its natural state.

The prodigies accomplished in industry are still more striking. With the cooperation of those intelligent beings, modern machines—themselves the fruit of three or four generations of inventors, mostly unknown—a hundred men manufacture now the stuff to provide 10,000 persons with clothing for two years. In well-managed coal mines the labour of a hundred miners furnishes each year enough fuel to warm 10,000 families under an inclement sky. And we have lately witnessed the spectacle of wonderful cities springing up in a few months for international exhibitions, without interrupting in the slightest degree the regular work of the nations.

And if in manufactures as in agriculture, and as indeed through our whole social system, the labour, the discoveries, and the inventions of our ancestors profit chiefly the few, it is none the less certain that mankind in general, aided by the creatures of steel and iron which it already possesses, could already procure an existence of wealth and ease for every one of its members.

Truly, we are rich—far richer than we think; rich in what we already possess, richer still in the possibilities of production of our actual mechanical outfit; richest of all in what we might win from our soil, from our manufactures, from our science, from our technical knowledge, were they but applied to bringing about the well-being of all.

## II

In our civilized societies we are rich. Why then are the many poor? Why this painful drudgery for the masses? Why, even to the best paid workman,

this uncertainty for the morrow, in the midst of all the wealth inherited from the past, and in spite of the powerful means of production, which could ensure comfort to all, in return for a few hours of daily toil?

The Socialists have said it and repeated it unwearyingly. Daily they reiterate it, demonstrating it by arguments taken from all the sciences. It is because all that is necessary for production—the land, the mines, the highways, machinery, food, shelter, education, knowledge—all have been seized by the few in the course of that long story of robbery, enforced migration and wars, of ignorance and oppression, which has been the life of the human race before it had learned to subdue the forces of Nature. It is because, taking advantage of alleged rights acquired in the past, these few appropriate today two-thirds of the products of human labour, and then squander them in the most stupid and shameful way. It is because, having reduced the masses to a point at which they have not the means of subsistence for a month, or even for a week in advance, the few can allow the many to work, only on the condition of themselves receiving the lion's share. It is because these few prevent the remainder of men from producing the things they need, and force them to produce, not the necessaries of life for all, but whatever offers the greatest profits to the monopolists. In this is the substance of all Socialism.

Take, indeed, a civilized country. The forests which once covered it have been cleared, the marshes drained, the climate improved. It has been made habitable. The soil, which bore formerly only a coarse vegetation, is covered today with rich harvests. The rock-walls in the valleys are laid out in terraces and covered with vines. The wild plants, which yielded nought but acrid berries, or uneatable roots, have been transformed by generations of culture into succulent vegetables or trees covered with delicious fruits. Thousands of highways and railroads furrow the earth, and pierce the mountains. The shriek of the engine is heard in the wild gorges of the Alps, the Caucasus, and the Himalayas. The rivers have been made navigable; the coasts, carefully surveyed, are easy of access; artificial harbours, laboriously dug out and protected against the fury of the sea, afford shelter to the ships. Deep shafts have been sunk in the rocks; labyrinths of underground galleries have been dug out where coal may be raised or minerals extracted. At the crossings of the highways great cities have sprung up, and within their borders all the treasures of industry, science, and art have been accumulated.

Whole generations, that lived and died in misery, oppressed and ill-treated by their masters, and worn out by toil, have handed on this immense inheritance to our century.

For thousands of years millions of men have laboured to clear the forests, to drain the marshes, and to open up highways by land and water. Every rood of soil we cultivate in Europe has been watered by the sweat of several races of men. Every acre has its story of enforced labour, of intolerable toil, of the people's sufferings. Every mile of railway, every yard of tunnel, has received its share of human blood.

The shafts of the mine still bear on their rocky walls the marks made by the pick of the workman who toiled to excavate them. The space between each prop in the underground galleries might be marked as a miner's grave; and who can tell what each of these graves has cost, in tears, in privations, in unspeakable wretchedness to the family who depended on the scanty wage of the worker cut off in his prime by firedamp, rockfall, or flood?

The cities, bound together by railroads and waterways, are organisms which have lived through centuries. Dig beneath them and you find, one above another, the foundations of streets, of houses, of theatres, of public buildings. Search into their history and you will see how the civilization of the town, its industry, its special characteristics, have slowly grown and ripened through the cooperation of generations of its inhabitants before it could become what it is today. And even today, the value of each dwelling, factory, and warehouse, which has been created by the accumulated labour of the millions of workers, now dead and buried, is only maintained by the very presence and labour of legions of the men who now inhabit that special corner of the globe. Each of the atoms composing what we call the Wealth of Nations owes its value to the fact that it is a part of the great whole. What would a London dockyard or a great Paris warehouse be if they were not situated in these great centres of international commerce? What would become of our mines, our factories, our workshops, and our railways, without the immense quantities of merchandise transported every day by sea and land?

Millions of human beings have laboured to create this civilization on which we pride ourselves today. Other millions, scattered through the globe, labour to maintain it. Without them nothing would be left in fifty years but ruins.

There is not even a thought, or an invention, which is not common property, born of the past and the present. Thousands of inventors, known and unknown, who have died in poverty, have cooperated in the invention of each of these machines which embody the genius of man.

Thousands of writers, of poets, of scholars, have laboured to increase knowledge, to dissipate error, and to create that atmosphere of scientific thought, without which the marvels of our century could never have appeared. And these thousands of philosophers, of poets, of scholars, of inventors, have themselves been supported by the labour of past centuries. They have been upheld and nourished through life, both physically and mentally, by legions of workers and craftsmen of all sorts. They have drawn their motive force from the environment.

The genius of a Séguin, a Mayer, a Grove, has certainly done more to launch industry in new directions than all the capitalists in the world. But men of genius are themselves the children of industry as well as of science. Not until thousands of steam-engines had been working for years before all eyes, constantly transforming heat into dynamic force, and this force into sound, light, and electricity, could the insight of genius proclaim the mechanical origin and the unity of the physical forces. And if we, children of the nineteenth century, have at last grasped this idea, if we know now how to apply it, it is again because daily experience has prepared the way. The thinkers of the eighteenth century saw and declared it, but the idea remained undeveloped, because the eighteenth century had not grown up like ours, side by side with the steam-engine. Imagine the decades that might have passed while we remained in ignorance of this law, which has revolutionized modern industry, had Watt not found at Soho skilled workmen to embody his ideas in metal, bringing all the parts of his engine to perfection, so that steam, pent in a complete mechanism, and rendered more docile than a horse, more manageable than water, became at last the very soul of modern industry.

Every machine has had the same history—a long record of sleepless nights and of poverty, of disillusion and of joys, of partial improvements discovered by several generations of nameless workers, who have added to the original invention these little nothings, without which the most fertile idea would remain fruitless. More than that: every new invention is a synthesis, the resultant of innumerable inventions which have preceded it in the vast field of mechanics and industry.



Science and industry, knowledge and application, discovery and practical realization leading to new discoveries, cunning of brain and of hand, toil of mind and muscle—all work together. Each discovery, each advance, each increase in the sum of human riches, owes its being to the physical and mental travail of the past and the present.

By what right then can anyone whatever appropriate the least morsel of this immense whole and say—This is mine, not yours?

### III

It has come about, however, in the course of the ages traversed by the human race, that all that enables man to produce and to increase his power of production has been seized by the few. Some time, perhaps, we will relate how this came to pass. For the present let it suffice to state the fact and analyze its consequences.

Today the soil, which actually owes its value to the needs of an ever-increasing population, belongs to a minority who prevent the people from cultivating it—or do not allow them to cultivate it according to modern methods.

The mines, though they represent the labour of several generations, and derive their sole value from the requirements of the industry of a nation and the density of the population—the mines also belong to the few; and these few restrict the output of coal, or prevent it entirely, if they find more profitable investments for their capital. Machinery, too, has become the exclusive property of the few, and even when a machine incontestably represents the improvements added to the original rough invention by three or four generations of workers, it none the less belongs to a few owners. And if the descendants of the very inventor who constructed the first machine for lace-making, a century ago, were to present themselves today in a lace factory at Bâle or Nottingham, and claim their rights, they would be told: “Hands off! this machine is not yours,” and they would be shot down if they attempted to take possession of it.

The railways, which would be useless as so much old iron without the teeming population of Europe, its industry, its commerce, and its marts, belong to a few shareholders, ignorant perhaps of the whereabouts of the lines of rails which yield them revenues greater than those of medieval kings. And if the children of those who perished by thousands while excavating the railway cuttings and tunnels were to assemble one day, crowding in their rags and hunger, to demand bread from the shareholders, they would be met with bayonets and grapeshot, to disperse them and safeguard “vested interests.”

In virtue of this monstrous system, the son of the worker, on entering life, finds no field which he may till, no machine which he may tend, no mine in which he may dig, without accepting to leave a great part of what he will produce to a master. He must sell his labour for a scant and uncertain wage. His father and his grandfather have toiled to drain this field, to build this mill, to perfect this machine. They gave to the work the full measure of their strength, and what more could they give? But their heir comes into the world poorer than the lowest savage. If he obtains leave to till the fields, it is on condition of surrendering a quarter of the produce to his master, and another quarter to the government and the middlemen. And this tax, levied upon him by the State, the capitalist, the lord of the manor, and the middleman, is always increasing; it rarely leaves him the power to improve his system of culture. If he turns to industry, he is allowed to work—though not always even that—only on condition that he yield a half or two-thirds of the product to him whom the land recognizes as the owner of the machine.

We cry shame on the feudal baron who forbade the peasant to turn a clod of earth unless he surrendered to his lord a fourth of his crop. We called those the barbarous times. But if the forms have changed, the relations have remained the same, and the worker is forced, under the name of free contract, to accept feudal obligations. For, turn where he will, he can find no better conditions. Everything has become private property, and he must accept, or die of hunger.

The result of this state of things is that all our production tends in a wrong direction. Enterprise takes no thought for the needs of the community. Its only aim is to increase the gains of the speculator. Hence the constant fluctuations of trade, the periodical industrial crises, each of which throws scores of thousands of workers on the streets.

The working people cannot purchase with their wages the wealth which they have produced, and industry seeks foreign markets among the monied classes of other nations. In the East, in Africa, everywhere, in Egypt, Tonkin or the Congo, the European is thus bound to promote the growth of serfdom. And so he does. But soon he finds that everywhere there are similar competitors. All the nations evolve on the same lines, and wars, perpetual wars, break out for the right of precedence in the market. Wars for the possession of the East, wars for the empire of the sea, wars to impose duties on imports and to dictate conditions to neighbouring states; wars against those “blacks” who revolt! The roar of the cannon never ceases in the world, whole races are massacred, the states of Europe spend a third of their budgets in armaments; and we know how heavily these taxes fall on the workers.

Education still remains the privilege of a small minority, for it is idle to talk of education when the workman’s child is forced, at the age of thirteen, to go down into the mine or to help his father on the farm. It is idle to talk of studying to the worker, who comes home in the evening wearied by excessive toil, and its brutalizing atmosphere. Society is thus bound to remain divided into two hostile camps, and in such conditions freedom is a vain word. The Radical begins by demanding a greater extension of political rights, but he soon sees that the breath of liberty leads to the uplifting of the proletariat, and then he turns round, changes his opinions, and reverts to repressive legislation and government by the sword.

A vast array of courts, judges, executioners, policemen, and gaolers is needed to uphold these privileges; and this array gives rise in its turn to a whole system of espionage, of false witness, of spies, of threats and corruption.

The system under which we live checks in its turn the growth of the social sentiment. We all know that without uprightiness, without self-respect, without sympathy and mutual aid, human kind must perish, as perish the few races of animals living by rapine, or the slave-keeping ants. But such ideas are not to the taste of the ruling classes, and they have elaborated a whole system of pseudoscience to teach the contrary.

Fine sermons have been preached on the text that those who have should share with those who have not, but he who would carry out this principle would be speedily informed that these beautiful sentiments are all very well in poetry, but not in practice. “To lie is to degrade and besmirch oneself,”

we say, and yet all civilized life becomes one huge lie. We accustom ourselves and our children to hypocrisy, to the practice of a double-faced morality. And since the brain is ill at ease among lies, we cheat ourselves with sophistry. Hypocrisy and sophistry become the second nature of the civilized man.

But a society cannot live thus; it must return to truth, or cease to exist.

Thus the consequences which spring from the original act of monopoly spread through the whole of social life. Under pain of death, human societies are forced to return to first principles: the means of production being the collective work of humanity, the product should be the collective property of the race. Individual appropriation is neither just nor serviceable. All belongs to all. All things are for all men, since all men have need of them, since all men have worked in the measure of their strength to produce them, and since it is not possible to evaluate everyone's part in the production of the world's wealth.

All things for all. Here is an immense stock of tools and implements; here are all those iron slaves which we call machines, which saw and plane, spin and weave for us, unmaking and remaking, working up raw matter to produce the marvels of our time. But nobody has the right to seize a single one of these machines and say: "This is mine; if you want to use it you must pay me a tax on each of your products," any more than the feudal lord of medieval times had the right to say to the peasant: "This hill, this meadow belong to me, and you must pay me a tax on every sheaf of corn you reap, on every brick you build."

All is for all! If the man and the woman bear their fair share of work, they have a right to their fair share of all that is produced by all, and that share is enough to secure them well-being. No more of such vague formulas as "The right to work," or "To each the whole result of his labour." What we proclaim is **THE RIGHT TO WELL-BEING: WELL-BEING FOR ALL!**

## II WELL-BEING FOR ALL

### I

Well-being for all is not a dream. It is possible, realizable, owing to all that our ancestors have done to increase our powers of production.

We know, indeed, that the producers, although they constitute hardly one-third of the inhabitants of civilized countries, even now produce such quantities of goods that a certain degree of comfort could be brought to every hearth. We know further that if all those who squander today the fruits of others' toil were forced to employ their leisure in useful work, our wealth would increase in proportion to the number of producers, and more. Finally, we know that contrary to the theory enunciated by Malthus—that Oracle of middle-class Economics—the productive powers of the human race increase at a much more rapid ratio than its powers of reproduction. The more thickly men are crowded on the soil, the more rapid is the growth of their wealth-creating power.

Thus, although the population of England has only increased from 1844 to 1890 by 62 percent, its production has grown, even at the lowest estimate, at double that rate—to wit, by 130 percent. In France, where the population has grown more slowly, the increase in production is nevertheless very rapid. Notwithstanding the crises through which agriculture is frequently passing, notwithstanding State interference, the blood-tax (conscription), and speculative commerce and finance, the production of wheat in France has increased fourfold, and industrial production more than tenfold, in the course of the last eighty years. In the United States this progress is still more striking. In spite of immigration, or rather precisely because of the influx of surplus European labour, the United States have multiplied their wealth tenfold.

However, these figures give but a very faint idea of what our wealth might become under better conditions. For alongside of the rapid development of our wealth-producing powers we have an overwhelming increase in the ranks of the idlers and middlemen. Instead of capital gradually concentrating itself in a few hands, so that it would only be necessary for the community to dispossess a few millionaires and enter upon its lawful heritage—instead of this Socialist forecast proving true, the exact reverse is coming to pass: the swarm of parasites is ever increasing.

In France there are not ten actual producers to every thirty inhabitants. The whole agricultural wealth of the country is the work of less than 7,000,000 men, and in the two great industries, mining and the textile trades, you will find that the workers number less than 2,500,000. But the exploiters of labour, how many are they? In the United Kingdom a little over 1,000,000 workers—men, women, and children, are employed in all the textile trades; less than 900,000 work the mines; much less than 2,000,000 till the ground, and it appeared from the last industrial census that only a little over 4,000,000 men, women and children were employed in all the industries.<sup>1</sup> So that the statisticians have to exaggerate all the figures in order to establish a maximum of 8,000,000 producers to 45,000,000 inhabitants. Strictly speaking the creators of the goods exported from Britain to all the ends of the earth comprise only from six to seven million workers. And what is the number of the shareholders and middlemen who levy the first fruits of labour from far and near, and heap up unearned gains by thrusting themselves between the producer and the consumer?

Nor is this all. The owners of capital constantly reduce the output by restraining production. We need not speak of the cartloads of oysters thrown into the sea to prevent a dainty, hitherto reserved for the rich, from becoming a food for the people. We need not speak of the thousand and one luxuries—stuffs, foods, etc., etc.—treated after the same fashion as the oysters. It is enough to remember the way in which the production of the most necessary things is limited. Legions of miners are ready and willing to dig out coal every day, and send it to those who are shivering with cold; but too often a third, or even one-half, of their number are forbidden to work more than three days a week, because, forsooth, the price of coal must be kept up! Thousands of weavers are forbidden to work the looms, although their wives and children go in rags, and although three-quarters of the population of Europe have no clothing worthy the name.

Hundreds of blast-furnaces, thousands of factories periodically stand idle, others only work half-time—and in every civilized nation there is a permanent population of about 2,000,000 individuals who ask only for work, but to whom work is denied.

How gladly would these millions of men set to work to reclaim waste lands, or to transform ill-cultivated land into fertile fields, rich in harvests! A year of well-directed toil would suffice to multiply fivefold the produce of those millions of acres in this country which lie idle now as “permanent pasture,” or of those dry lands in the south of France which now yield only about eight bushels of wheat per acre. But men, who would be happy to become hardy pioneers in so many branches of wealth-producing activity, must remain idle because the owners of the soil, the mines and the factories prefer to invest their capital—taken in the first place from the community—in Turkish or Egyptian bonds, or in Patagonian gold mines, and so make Egyptian fellahs, Italian emigrants, and Chinese coolies their wage-slaves.

This is the direct and deliberate limitation of production; but there is also a limitation indirect and not of set purpose, which consists in spending human toil on objects absolutely useless, or destined only to satisfy the dull vanity of the rich.

It is impossible to reckon in figures the extent to which wealth is restricted indirectly, the extent to which energy is squandered, while it might have served to produce, and above all to prepare the machinery necessary to production. It is enough to cite the immense sums spent by Europe in armaments, for the sole purpose of acquiring control of markets, and so forcing her own goods on neighbouring territories, and making exploitation easier at home; the millions paid every year to officials of all sorts, whose function it is to maintain the “rights” of minorities—the right, that is, of a few rich men—to manipulate the economic activities of the nation; the millions spent on judges, prisons, policemen, and all the paraphernalia of so-called justice—spent to no purpose, because we know that every alleviation, however slight, of the wretchedness of our great cities is always followed by a considerable diminution of crime; lastly, the millions spent on propagating pernicious doctrines by means of the press, and news “cooked” in the interest of this or that party, of this politician or of that group of speculators.

But over and above this we must take into account all the labour that goes to sheer waste—here, in keeping up the stables, the kennels, and the

retinue of the rich; there, in pandering to the caprices of society and the depraved tastes of the fashionable mob; there again, in forcing the consumer to buy what he does not need, or foisting an inferior article upon him by means of puffery, and in producing on the other hand wares which are absolutely injurious, but profitable to the manufacturer. What is squandered in this manner would be enough to double the production of useful things, or so to plenish our mills and factories with machinery that they would soon flood the shops with all that is now lacking to two-thirds of the nation. Under our present system a full quarter of the producers in every nation are forced to be idle for three or four months in the year, and the labour of another quarter, if not of the half, has no better results than the amusement of the rich or the exploitation of the public.

Thus, if we consider on the one hand the rapidity with which civilized nations augment their powers of production, and on the other hand the limits set to that production, be it directly or indirectly, by existing conditions, we cannot but conclude that an economic system a trifle more reasonable would permit them to heap up in a few years so many useful products that they would be constrained to say—“Enough! We have enough coal and bread and raiment! Let us rest and consider how best to use our powers, how best to employ our leisure.”

No, plenty for all is not a dream—though it was a dream indeed in those days when man, for all his pains, could hardly win a few bushels of wheat from an acre of land, and had to fashion by hand all the implements he used in agriculture and industry. Now it is no longer a dream, because man has invented a motor which, with a little iron and a few sacks of coal, gives him the mastery of a creature strong and docile as a horse, and capable of setting the most complicated machinery in motion.

But, if plenty for all is to become a reality, this immense capital—cities, houses, pastures, arable lands, factories, highways, education—must cease to be regarded as private property, for the monopolist to dispose of at his pleasure.

This rich endowment, painfully won, builded, fashioned, or invented by our ancestors, must become common property, so that the collective interests of men may gain from it the greatest good for all.

There must be EXPROPRIATION. The well-being of all—the end; expropriation—the means.



## II

Expropriation, such then is the problem which History has put before the men of the twentieth century: the return to Communism in all that ministers to the well-being of man.

But this problem cannot be solved by means of legislation. No one imagines that. The poor, as well as the rich, understand that neither the existing Governments, nor any which might arise out of possible political changes, would be capable of finding such a solution. They feel the necessity of a social revolution; and both rich and poor recognize that this revolution is imminent, that it may break out in a few years.

A great change in thought has taken place during the last half of the nineteenth century; but suppressed, as it was, by the propertied classes, and denied its natural development, this new spirit must now break its bonds by violence and realize itself in a revolution.

Whence will the revolution come? how will it announce its coming? No one can answer these questions. The future is hidden. But those who watch and think do not misinterpret the signs: workers and exploiters, Revolutionists and Conservatives, thinkers and men of action, all feel that a revolution is at our doors.

Well, then—What are we going to do when the thunderbolt has fallen?

We have all been bent on studying the dramatic side of revolutions so much, and the practical work of revolutions so little, that we are apt to see only the stage effects, so to speak, of these great movements; the fight of the first days; the barricades. But this fight, this first skirmish, is soon ended, and it only after the breakdown of the old system that the real work of revolution can be said to begin.

Effete and powerless, attacked on all sides, the old rulers are soon swept away by the breath of insurrection. In a few days the middle-class monarchy of 1848 was no more, and while Louis Philippe was making good his escape in a cab, Paris had already forgotten her “citizen king.” The government of Thiers disappeared, on the 18th of March, 1871, in a few hours, leaving Paris mistress of her destinies. Yet 1848 and 1871 were only insurrections. Before a popular revolution the masters of “the old order”

disappear with a surprising rapidity. Its upholders fly the country, to plot in safety elsewhere and to devise measures for their return.

The former Government having disappeared, the army, hesitating before the tide of popular opinion, no longer obeys its commanders, who have also prudently decamped. The troops stand by without interfering, or join the rebels. The police, standing at ease, are uncertain whether to belabour the crowd, or to cry: "Long live the Commune!" while some retire to their quarters to "await the pleasure of the new Government." Wealthy citizens pack their trunks and betake themselves to places of safety. The people remain. This is how a revolution is ushered in.

In several large towns the Commune is proclaimed. In the streets wander scores of thousands of men, and in the evening they crowd into improvised clubs, asking: "What shall we do?" and ardently discuss public affairs. All take an interest in them; those who yesterday were quite indifferent are perhaps the most zealous. Everywhere there is plenty of goodwill and a keen desire to make victory certain. It is a time when acts of supreme devotion are occurring. The masses of the people are full of the desire of going forward.

All this is splendid, sublime; but still, it is not a revolution. Nay, it is only now that the work of the revolutionist begins.

Doubtless there will be acts of vengeance. The Watrins and the Thomases will pay the penalty of their unpopularity; but these are mere incidents of the struggle—not the revolution.

Socialist politicians, radicals, neglected geniuses of journalism, stump orators—both middle-class people and workmen—will hurry to the Town Hall, to the Government offices, to take possession of the vacant seats. Some will decorate themselves with gold and silver lace to their hearts' content, admire themselves in ministerial mirrors, and study to give orders with an air of importance appropriate to their new position. How could they impress their comrades of the office or the workshop without having a red sash, an embroidered cap, and magisterial gestures! Others will bury themselves in official papers, trying, with the best of wills, to make head or tail of them. They will indite laws and issue high-flown worded decrees that nobody will take the trouble to carry out—because revolution has come.

To give themselves an authority which they have not they will seek the sanction of old forms of Government. They will take the names of "Provisional Government," "Committee of Public Safety," "Mayor,"

“Governor of the Town Hall,” “Commissioner of Public Safety,” and whatnot. Elected or acclaimed, they will assemble in Boards or in Communal Councils, where men of ten or twenty different schools will come together, representing—not as many “private chapels,” as it is often said, but as many different conceptions regarding the scope, the bearing, and the goal of the revolution. Possibilists, Collectivists, Radicals, Jacobins, Blanquists, will be thrust together, and waste time in wordy warfare. Honest men will be huddled together with the ambitious ones, whose only dream is power and who spurn the crowd whence they are sprung. All coming together with diametrically opposed views, all—forced to enter into ephemeral alliances, in order to create majorities that can but last a day. Wrangling, calling each other reactionaries, authoritarians, and rascals, incapable of coming to an understanding on any serious measure, dragged into discussions about trifles, producing nothing better than bombastic proclamations; all giving themselves an awful importance while the real strength of the movement is in the streets.

All this may please those who like the stage, but it is not revolution. Nothing has been accomplished as yet.

And meanwhile the people suffer. The factories are idle, the workshops closed; trade is at a standstill. The worker does not even earn the meagre wage which was his before. Food goes up in price. With that heroic devotion which has always characterized them, and which in great crises reaches the sublime, the people will wait patiently. “We place these three months of want at the service of the Republic,” they said in 1848, while “their representatives” and the gentlemen of the new Government, down to the meanest Jack-in-office received their salary regularly.

The people suffer. With the childlike faith, with the good humour of the masses who believe in their leaders, they think that “yonder,” in the House, in the Town Hall, in the Committee of Public Safety, their welfare is being considered. But “yonder” they are discussing everything under the sun except the welfare of the people. In 1793, while famine ravaged France and crippled the Revolution; whilst the people were reduced to the depths of misery, although the Champs Élysées were lined with luxurious carriages where women displayed their jewels and splendour, Robespierre was urging the Jacobins to discuss his treatise on the English Constitution. While the worker was suffering in 1848 from the general stoppage of trade, the Provisional Government and the National Assembly were wrangling over

military pensions and prison labour, without troubling how the people managed to live during the terrible crisis. And could one cast a reproach at the Paris Commune, which was born beneath the Prussian cannon, and lasted only seventy days, it would be for this same error—this failure to understand that the Revolution could not triumph unless those who fought on its side were fed: that on fifteen pence a day a man cannot fight on the ramparts and at the same time support a family.

The people will suffer and say: “How is a way out of these difficulties to be found?”

### III

It seems to us that there is only one answer to this question: We must recognize, and loudly proclaim, that everyone, whatever his grade in the old society, whether strong or weak, capable or incapable, has, before everything, THE RIGHT TO LIVE, and that society is bound to share amongst all, without exception, the means of existence it has at its disposal. We must acknowledge this, and proclaim it aloud, and act up to it.

Affairs must be managed in such a way that from the first day of the revolution the worker shall know that a new era is opening before him; that henceforward none need crouch under the bridges, while palaces are hard by, none need fast in the midst of plenty, none need perish with cold near shops full of furs; that all is for all, in practice as well as in theory, and that at last, for the first time in history, a revolution has been accomplished which considers the NEEDS of the people before schooling them in their DUTIES.

This cannot be brought about by Acts of Parliament, but only by taking immediate and effective possession of all that is necessary to ensure the well-being of all; this is the only really scientific way of going to work, the only way which can be understood and desired by the mass of the people. We must take possession, in the name of the people, of the granaries, the shops full of clothing and the dwelling houses. Nothing must be wasted. We must organize without delay a way to feed the hungry, to satisfy all wants,

to meet all needs, to produce not for the special benefit of this one or that one, but so as to ensure to society as a whole its life and further development.

Enough of ambiguous words like “the right to work,” with which the people were misled in 1848, and which are still resorted to with the hope of misleading them. Let us have the courage to recognise that : H O O E H L D, Once forward possible, must be realized.

When the workers claimed the right to work in 1848, national and municipal workshops were organized, and workmen were sent to drudge there at the rate of 1s. 8d. a day! When they asked the “Organization of Labour,” the reply was: “Patience, friends, the Government will see to it; meantime here is your 1s. 8d. Rest now, brave toiler, after your lifelong struggle for food!” And in the meantime the cannons were overhauled, the reserves called out, and the workers themselves disorganized by the many methods well known to the middle classes, till one fine day, in June, 1848, four months after the overthrow of the previous Government, they were told to go and colonize Africa, or be shot down.

Very different will be the result if the workers claim the RIGHT TO WELL-BEING! In claiming that right they claim the right to take possession of the wealth of the community—to take houses to dwell in according to the needs of each family; to socialize the stores of food and learn the meaning of plenty, after having known famine too well. They proclaim their right to all social wealth—fruit of the labour of past and present generations—and learn by its means to enjoy those higher pleasures of art and science which have too long been monopolized by the rich.

And while asserting their right to live in comfort, they assert, what is still more important, their right to decide for themselves what this comfort shall be, what must be produced to ensure it, and what discarded as no longer of value.

The “right to well-being” means the possibility of living like human beings, and of bringing up children to be members of a society better than ours, whilst the “right to work” only means the right to be always a wage-slave, a drudge, ruled over and exploited by the middle class of the future. The right to well-being is the Social Revolution, the right to work means nothing but the Treadmill of Commercialism. It is high time for the worker to assert his right to the common inheritance, and to enter into possession of it.

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LQWHOOLJHQFH ZKLFK HDFK KDG GLVSOC  
ZRXOG RXWYLH HDFK RWKHU LQ XQVHOIL

7KLV WHQGHQF\ H[LVWV DQG LV IHOW I  
HDFK DUH VDWLVLHG DQG LQ SURSRUW  
LQFUHDVHV ,W EHFRPHV DQ DFWLYH IRU  
WKH PHDQ SUHRFFXSDWLRQV RI HYHU\GE

+RZ FDQ ZH GRXEW WKHQ WKDW ZKHQ  
SODFHG DW WKH VHUYLFH RI DOO ZKHQ  
SULQFLSOHV ~~Z B M Q Q Q D E F R U~~ HUHG LWV S  
SURGXFHV PXFK PRUH ~~W K B Q E D Q Q Z H F G R X C~~  
IRUFH DOUHDG\ VR ~~S H R Z H M M X C S K H Z U I O R I H Q~~  
WKH UXOLQJ SULQFLSOH RI VRFLDO OLIH

)ROORZLQJ WKHVH LQGLFDWLRQV DQG  
H[SURSULDWLRQ RI ZKLFK ZH VKDOO VS  
FRQYLQFHG WKDW RXU ILUVW REOLJDWL  
WKH SRZHU XSKROGLQJ WKH SUHVHQW V  
ZLWKRXW GHOD\

%XW RXUV LV QHLWKHU WKH &RPPXQLV  
QRU RI WKH \*HUPDQ 6WDWH 6RFLDOLVWV  
&RPPXQLVP ZLWKR~~X W K H R P P X Q L V~~ RI W  
V\QWKHVLV RI WKH WZR LGHDOV SXU<sup>2</sup>VXH  
(FRQRPLF DQG 3ROLWLFDO /LEHUW\

,Q WDNLQJ 3\$QDUFK\` IRUJ~~B@U]D@HBRQ~~ &H  
JLYLQJ H[~~SUHVLRQ~~ WR DQRWKHU PDUNF  
:KHQHYHU (XURSHDQ VRFLHWLHV KDYH G  
KDYH VKIDW~~K@~~ RINH RI DXWKRULW\ DQG V  
PRUH RU OHVV RQ WKH SUL~~\$QLG@~~ ~~CHVRRU~~ U'  
WKDW WKHVH SHULRGV RI SDUWLDO RU J  
JRYHUQPHQWV ZHUH RYHUWKURZQ ZHUH  
LQ WKH HFRQRPLF DQG WKH LQWHOOFW  
HQIUDQFKLVPHQW RI WKH FRPPXQHV Z  
ODERXU RI WKH JXLOGV KDYH QHYHU EH  
SHDVDQW XSULVLQJ ZKLFK EURXJKW DER  
SDSDF\ DQG VR LW ZDV ~~DJH@~~ ~~QZL@~~ ~~WKE@~~ ~~WKH@~~  
ZDV FUHDWHG RQ WKH RWKHU VLGH RI W  
2OGRUOG

\$QG LI ZH REVHUYH WKH SUHVHQW GH\  
PRVW XQPL~~DWDRYD@~~ ~~EP@~~ QW HYHU PRUH DQG  
OLPLW WKH VSKHUH RI DFWLRQ RI WKH \*  
OLEHUW\ WR WKH LQGLYLGXDO 7KLV HYI  
FXPEHUHG E\ WKH UXLQV DQG UXEELVK F  
/LNH DOO HYROXWLRQV LW RQO\ ZDLWV  
ZKLFK EORFN~~W@~~ ~~W@~~ ~~Z@~~ ~~W@~~ ~~PD@~~ ILQG IUHH VFR

\$IWHU KDYLQJ VWULYHQ ORQJ LQ 2~~WDL@~~ ~~H@~~  
SUREOHP RI FRQVWUXFWLQJ D JRYHUQPH  
WR REHGLHQFH ZLWKRXW LWVHOI ~~FPH@~~ ~~LD@~~  
DWWHPSW WR IUHH WKHPVHOYHV IURP H  
WKHLU ~~QH@~~ ~~H@~~ ~~J@~~ ~~W@~~ ~~LR@~~ E\ IUHH FRQWDFWV  
SXUVXLQJ WKH VDPH DLP 7KH LQGHSHQ@  
EHFRPHV D SUHVVLQJ QHHG PXWXDO DJ  
UHJXODWH LQGLYLGXDO LQWH~~Y@~~ ~~H@~~ ~~V@~~ ~~W@~~ ~~R@~~ ~~IL@~~ ~~QH@~~  
GLVUHJDUGLQJ WKH IURQWLHUV RI WKH

\$OO WKDW ZDV RQFH ORRNHG RQ DV D  
FDOOHG LQ TXHVWLRQ 7KLQJV DUH DUU  
ZLWKRXW WKH LQWHUYHQWLRQ RI WKH 6  
WKLV GLUHFWLRQ ZH DUH OHG WR FRQF  
WR UHGXFH \*RYHUQPHQW LQWHUIHUHQFH  
SHUVRQLLFDWLRQ RI LQMXVWLFH RSSU

: H FDQ DOUHDG\ FDWFK JOLPSVHV RI D  
WKH LQGLYLGXDO DUH QR ~~VRQJHWHW~~  
IHOW E\ HDFK RQH RI XV WR VHHN WKH V  
KLV QHLJKERXUV

\$VVXUHGO\ WKH LGHD RI D VRFLHW\ ZL\  
PDQ\ REMHFWRQV DV WKH SROLWLFDO  
FDSL~~WMD~~ODY:H DOO EHHQ EURXJKW XS IUR  
DV D VRUW RI 3URYLGHQFH DOO RXU HG  
VFKRRO WKH %\JDQWLQH FRGH ZKLFK ZH  
5RPDQ ~~DDZ~~ WKH YDULRXV VFLHQFHV WD  
WR EHOLHYH LQ \*RYHUQPHQW DQG LQ W  
7R PDLQWDLQ WKLV VXSHUWLWLRQ ZKI  
HODERUDWHG DQG WDXJKW DOO SROLWI  
SROLWLFLDQ ZKDWHYHU KLV FRORXUV  
3\*LYH P\ SDUW\ WKH SRZHU ZH FDQ DQG  
ZKLFK SUHVVR KHDYLO\ XSRQ \RX

)URP WKH FUDGOH WR WKH JUDYH DOO  
2SHQ DQ\ ERRN RQ VRFLRORJ\ RU MXULV  
\*RYHUQPH~~QDQ~~L~~WLRQ~~ LWVH~~DWS~~ODE~~θ~~OW  
WR EHOLHYH WKDW WKHUH LV QRWKLQJ  
VWDWHVPHQ

7KH 3UHVVR WHDFKHV XV WKH V~~DR~~RHOHQFH  
DUH GHYRWHG WR SDUOLDPHQWDU\ GHEI  
YDVW HYHU\GD\ OLIH RI D QDWLRQ DSSH  
HFRQRPLF VXEMHFW RU LQ WKH SDJHV  
FDVHV \$QG ZKHQ \RX UHMG WKH QHZVSD  
LQFDQFXODEOH ~~QXPEHU~~~~FRQ~~WURZ >  
GLH ZKR NQR~~ZKR~~ZRURZ DQG FRQVXPH W  
IHZ HQFXPEHULQJ SHUVRQDJHV ZKR KDYI  
KLGGHQ E\ WKHLJH~~G~~GRXUV LH~~Q~~R~~U~~DDQFH

\$QG \HW DV VRRQ DV ZH SDVV IURP SUL  
ZH WKURZ D JOD~~ZH~~FD~~DM~~WR~~B~~X~~FW~~\E\ WKH  
E\ WKH \*RYHUQPHQW %DO]DF DOUHDG\  
VSHQG WKH ZKROH RI WKHLU OLYHV ZLW  
VDYH WKH KHDY\ WD~~[HV~~WK~~YH~~UDUG~~DF~~PL~~SO~~  
WUDQVDFWRQV DUH PDGH ZLWKRXXW \*RY  
WK~~H~~PKRVH RI FRPPHUFH ~~B~~Q~~G~~H~~R~~F~~D~~U~~K~~HL~~H~~IF~~K~~

ZD\ WKDW WKH \*RYHUQPHQW FRXOG QRW  
SDUWLHV KDG WKH LQWHQWLRQ RI QRW  
D PDQ ZKR XQGHUVDQGV FRPPHUFH KH  
EXVLQHVV WUDQVDFWHG E\ PHUFKDQWV  
QRW EDVHG RQ PXWXDO FRQILGHQFH 7K  
QRW WR ORVH KLV FHMWRWLDQV DQVXVH  
PDQ ZKR GRHV QRW IHHO WKH VOLJKWHV  
ZLWK QR[LRXV GUXJV FRYHUG ZLWK SRI  
ERXQG WR NHHS KLV HQJDJHPHQWV %XV  
XQGHU SUHVHQW FRQGLWLRQV ZKHQ HQ  
RQO\ DLP FDQ ZH GRXEW LWV UDSLQ SU  
RI RWKHUV ODERXU ZLOO QR ORQJHU EI  
\$QRWKHU VWULNLQJ IDFW ZKLFK HVSH  
VSHDNV VWLOO PRUH LQ IDYRXU RI RXU  
ILHOG RI HQWHUSULVH GXH WR SULYDWH  
RI IUHH]DWLRQV RIVDOOLQGV XVV WK  
FKDSWHU GUMRSHUHQV LW WR PHQWLF  
VR QXPHURXV DQG VR FXVWRPDU\ WKDW  
RI WKH QLQWHMQRWKRQV SROLWLFDO  
WKHP DOZD\V SUHIHUULQJ WR WDON WR  
7KHV]DWLRQV IUHH DQG LQILQLWH  
RI RXU FLYLOL]DWLRQ WKH\ H[SDQG VR  
WKH\ DUH VR QHFHVVDU\ D UHVXOW RI W  
FLYLOL]HG PDQV DQG DDGWDQW DJHRXVO  
LQWHUIHUHQFH WKDW ZH PXVW UHFRJQI  
LQ WKH OLIH RI VRFLHWLHV ,I WKH\ GR  
PDQLIHVWDWLRQV RI OLIH LW LV WKDW  
SRYHUW\ RI WKH ZRUVLVLRQV QMSUHS  
DSSURSULDWLRQ RI FDSLWDO DQG LQ W  
ZLOO VHH WKHP FRYHULQJ WKHVLPWQV  
7KH KLVWRU\ RI WKH ODVW ILIW\ \HDUV  
5HSUHVHQWDWLYH \*RYHUQPHQW WKPSIB  
KDYH VRXJKW WR DVVLJQ WR LW ,Q GD\  
TXRWHG DV KDYLQJ ZLWQHVVHG WKH IDL  
7KLV LPSRWHQFH LV EHFRPLQJ VR HYLQ  
SDUOLDPHQWDULDQLVP DQG WKH LQKHU  
DUH VR VHOI HYLGHQW WKDW WKH IHZ V

WKHP 60 LOO /HYHUGD\V GLG EXW JLYH  
GLVVDWLVIDFWLRYO W W L I Q G E R O W G L R V H H  
IHZ PHQ DQG VD\LQJ WR WKHP 30DNH OD  
DFWL D O W M K R X J K Q R W R Q H R I \ R X N Q R Z V  
: H D U H E H J L Q Q L Q J W R V H H W K D W J R Y H  
D E D Q G R Q L Q D L U O R W W K H D I F R X Q W U \ W R W I  
W K H P D M R U L W L H V L Q W K H + R X V H D Q G L C  
Z K R K D Y H Q R R S L Q L R Q R I W K H L U R Z Q  
0 D Q N L Q G L V V H H N L Q J D Q G D O U H D G \ I L C  
3 R V W D O 8 Q L R Q W K H U D L O Z D \ X Q L R Q V D  
R I V R O X W L R Q V E D V H G R Q I U H H D J U H H P H  
7 R G D Z K H Q J U R X S V V F D W W H U H G Q I D H W K E  
I R U V R P H R E M W K M \ R O R R O V R K H U H O H F W D  
- D F N V R I D O O W U D G H V H U 7 K H W S D U H H H G L C  
S R V V L E O H W R P H H W G L U H F W O \ R U F R P H  
G H O H J D W H V Y H U V H G L Q W K H T X H V W L R Q  
3 ( Q G H D Y R X U W R F R P H W R D Q D J U H H P H Q V  
U H W X U Q Q R W Z L W K D O D Z L Q \ R X U S R F N  
Z K L F K Z H P D \ R U P D \ Q R W D F F H S W '  
6 X F K L V W K H P H W K R G R I W K H J U H D W L C  
V R F L H W L H V D Q G Q X P H U R X V D V V R F L D W L I  
F R Y H U ( X U R S H D Q G W K H 8 Q L W H G 6 W D W H  
V R F L H W R F L H W \ I R X Q G H G R Q V H U I G R P L V  
P R Q D U F K \ D V R F L H W \ E D V H G R Q W K H Z D  
P D V V H V E \ W K H F D S L W D O L V W V I L Q G V L W  
S D U O L D P H Q W D U L D Q L V P H J O X W L D J I S R H V W H R V  
L Q K H U L W D Q F H P X V W V H H N L Q I U H H J U R )  
R J D Q L J D W L R Q L Q K D U P R Q \ Z L W K W K H Q H  
( Y H U \ H F R Q R P L F S K D V H K D V D S R O L W L F  
Z R X O G E H L P S R V V L E O H W R W R X F K S U L Y D  
S R O L W L F D O O L I H E H I R X Q G D W W K H V D P I

# IV

( ' %o < ^ %e ; , ^ 本

## I

,W LV WROG RI 5RWKVKLOG WKDW VHHI  
RI ahdh KH KLW XSRQ WKH IROORZLQJ V'  
VDLG KH <sup>3</sup>WKDW P\ IRUWXQH KDV EHHQ I  
LI LW ZHUH GLYLGHG WRPRUURZ DPRQJ V  
ZRXOG RQO\ DPRXQW ~~WRZIROO~~ ~~WKKLOO~~ LQJ  
WR HDFK KLV IRXU VKLOOLQJV LI KH DVN  
+DYLQJ JLYHQ GXH SXEOLFLW\ WR KLV  
XVXDO WR VWUROO TXLHWO\ WKURXJK W  
SDVVHVE\ DVNHG IRU WKHLU IRXU VKLO  
VPLOH +LV VWUDWDJHP VXFFHHGHG DQ  
SRVVHVLRQ RI LWV ZHDOWK

,W LV LQ PXFK WKH VDPH IDVKLRQ WKD  
FODVVHV UHDVRO ~~Q\$ZKH(QS~~ ~~WRKSHU~~ ~~LDD~~ LQJ , I  
<RX WDNH DOO WKH RYHUFRDWV DQG OD'  
KHOS KLPVHOI DQG ILJKW IRU WKH EHVW  
%XW VXFK MHVWV DUH LUUHOHYDQW DV  
UHGLVWULEXWLRQ RI RYHUFRDWV DOWK  
WKH VKLYHULQJ IRON ZRXOG VHH DGYDQ  
WKH ZHDOWK RI WKH 5RWKVKLOGV :KD'  
HYHU\ KXPdq EHLQJ ERUQ LQWR WKH ZR  
WKH ILUVW LQVWDQFH RI OHDUQLQJ VRP  
VNLOOHG LQ LW DQG QH[W WKDW KH VK  
DVNLQJ OHDYH RI ~~DDGWZLWR~~ ~~RBRVZ~~ ~~QBDQ~~ GLC  
FDSLWDO ~~LV~~ ~~WK~~ ~~DUH~~ ~~RIL~~ ~~Z~~ ~~Q~~ ~~D~~ W KH SURGXFHV

5RWKVFKL ~~ODQG~~ RIUEW ~~OMV~~ LWDZLQ ~~RMUY~~  
FRPPXQDO SURGXFWLRQ

7KH GD\ ZKHQ WKH ODERXUHU PD\ WLOC  
RI ZKDW KH SURGXFHV WKH GD\ ZKHQ W  
VRLO IRU ULFK KDUYHVWV DUH DW WKH I  
WKH ZRUNHU LQ WKH IDFWRU\ SURGXFHV  
PRQR ~~S<sup>2</sup>RV~~ ~~KL~~ ~~WW~~ GD\ ZLOO VHH WKH ZRUNHU  
EH QR PRUH 5RWKVFKLOGV RU RWKHU H[

1R RQH ZLOO WKHQ KDYH WR VHOO KLV  
UHSUHVHQWV D IUDFWLRQ RI ZKDW KH SI

<sup>3</sup>6R IDUR JRRG ' VD\ RXU FULWLFV <sup>3</sup>EXW  
LQ IURP WKH RXWVLGH +RZ DUH \RX WR  
PLOORQV LQ &KLQD DQG WKHQ VHWWOI  
SUHYHQW VXFK D RQH IURP VXUURXQGLC  
VOD ~~YURP~~ H[SORLWLQJ WKHP DQG HQULFK

<sup>3</sup><RX FDQQRW EULQJ DERXW D UHYROXW  
: HOO <sup>2</sup> ~~DW~~ ~~HH~~ ~~QR~~ X JRLQJ WR HVWDEOLVK FX\  
VHDFK DOO ZKR HQWHU \RXU FRXQWU\  
WKH ~~1~~ ~~Q~~ DUFKLWV SROLFHPHQ ILULQJ RQ W  
VSHFWDFOH '

%XW DW WKHJ ~~XPRQ~~ ~~WRW~~ ~~WKU~~ ~~M~~ ~~D~~ ~~W~~ ~~RV~~ ~~HUZH~~ ~~OR~~  
SURSRXQG LW KDYH QHYHU SDXVHG WR I  
ULFK \$ OLWWOH WKR ~~XX~~ ~~KM~~ ~~V~~ ~~R~~ ~~X~~ ~~CK~~ ~~R~~ ~~Z~~ ~~K~~ ~~R~~ ~~Z~~ ~~H~~  
IRUWXQHV KDYH WKHLU EHJLQQ: ~~KK~~ ~~Q~~ ~~W~~ ~~Q~~ ~~H~~  
ORQJHU DQ\ GHVWLWXWH WKHUH ZLOO C  
/HW XV JODQFH IRU D PRPHQW DW WKH  
EHJDQ WR VSULQJ XS

\$ IHXGDO EDURQ VHL] ~~HVX~~ ~~RQDD~~ ~~OR~~ ~~Q~~ ~~W~~ ~~L~~ ~~D~~ ~~M~~  
LV HPSW\ RI IRON RXU EDURQ LV QRW UL  
PLJKW DV ZHOO SRVVHV D SURSHUW\ LC  
:KDW GRHV RXU EDURQ GR WR HQULFK  
IRU SRRU SHDVDQWV

,I HYHU\ SHDVDQW IDUPHU KDG D SLHFF  
KH KDG LQ DGGLWLRQ WKH WRROV ~~D~~ ~~Q~~ ~~R~~ ~~V~~  
ZRXOG SORXJK WKH ODQGV RI WKH EDUR  
%XW WKHUH DUH WKRXVDQGV RI GHVWLW



SHVWLOHQFH 7KH\ KDYH QHLWKHU KRUV  
0LGGOH \$JHV DQG D GUDXJKW KRUVH VV  
\$OO WKHVH GHVWLWXWH FUHDWXUHV D  
WKH\ VHH RQ WKH URDG DW ~~HWK\ DFRHQLQ~~  
LQGLFDWLQJ E\ FHUWDLQ VLJQV DGDSWH  
ZKR LV ZLOOLQJ WR VHWWOH RQ KLV HV\  
EXLOG KLV FRWWDJH DQG VRZ KLV ILHOG  
FHUWDLQ QXPEHU RI \HDUV 7KH QXPEHU  
FURVVHV RQ WKH VLJQERDUG DQG WKH  
FURVVHV

6R WKH SRRU ZUHWFKHV ~~FURVVDQV~~ ~~FRVVDQV~~  
URDGV GUDLQ WKH PDUVKHV EXLOG YL\  
EHJLQV WR WD[ WKHP )LYH \HDUV ODWH  
LV DQG WKH SHDVDQW DFFHSWV WKHVH  
EHWWHU RQHV HOVHZKHUH /LWWOH E\ O  
EDURQV WKH SRYHUW\ RI WKH SHDVDQW  
ZHADOWK \$QG LV LV QRW RQO\ WKH ORU\  
ZKROH KRVW RI XVXUHUV VZRRS GRZQ X\  
ZUHWFKHGQHVV RI WKH SHDVDQWV LQFU  
LQ WKH 0LGGOH \$JHV \$QG WRGD\ LV LV  
IUHH ODQGV ZKLFK WKH SHDVDQW FRXOG  
WR VRPH <sup>3</sup>VKDEE ~~ORU~~ ~~FIR~~ ~~QX~~ ~~WH~~ ~~HQGLQJ~~ ~~FR~~  
KH EXUGHQ KLPVHOI ZLWK D OHDVH ZKLF  
:RXOG ~~GR~~ ~~HWKH~~ PpW ~~FR~~ ~~QW~~ ~~WH~~ ~~MP~~ JLYH KD  
WKH ODQGRZQHU"

%XW KH KDV QRWKLQJ 6R KH ZLOO DFF  
ERG\ DQG VR ~~XZ~~ ~~W~~ ~~OR~~ ~~H~~ ~~K~~ ~~W~~ ~~K~~ ~~W~~ ~~IL~~ ~~OO~~ ~~V~~ WKH VRLC  
6R LQ WKH QLQH ~~MX~~ ~~HW~~ ~~Q~~ ~~DK~~ E ~~Q~~ ~~W~~ ~~X~~ ~~H~~ ~~U~~ ~~0~~ ~~L~~ ~~G~~ ~~G~~  
WKH SHDVDQW LV D VRXUFH RI ZHADOWK \

7KH ODQGORUG RZHV KLV ULFKHV WR WK  
RI WKH FDSLWDOLVW FRPHV IURP WKH VI  
7DNH WKH FDVH RI D FLWL]HQ RI WKH P  
ILQGV KLPVHOI LQ SRVVHVVLQR RI ...b` ``  
PRQH\ DW WKH UDWDH RHU.Hb EDJDWHDOH L  
IDQWDVWLF VH%QXWOWKHVQOKHXZR XOG KDY  
WHQ \HDEV 6R EHLQJ D 3SUDFWLFDQ SH  
LQWDFW DQG ZLQ IRU KLPVHOI D VQXJ C  
7KLV LV YHU\ HDVIRLQ VRKHU JRRFGHWHDVR  
YLOODJHV VZDUP ZLWK ZRUNHUV ZKR KD  
PRQWK RU HYHQ DIRUWQLJKW 6R 7KXUE  
KDVWHQ WR OHQG KLP DQRWKHU ...b` ``  
3EXVLQHVV DELOLW\` DQG ZLWK WKLW U  
e`` KDQGV

, I DOO WKH PHQ DQG ZRPHQ LQ WKH FR  
DVVXUHG DQG WKHLU GDLO\ QHHGV DOU  
FDSLWDOLVW DW D ZDJZKR D H DOK HD FRURPF  
SURGXFHV LQ D GD\ VHOO LQ WKH PDUNT  
8QKDS\$HONQRZ LW DVOHVSRRR ZHTOXDUWHL  
WKH QHLJKERXULQJ YLOODJHV DUH IXOO  
FODPRXU IRU EUHDG 6R EHIRUH WKH ID  
KDVWHG UWWKHIPVHOYHV :KHUH D KXQGUI  
EHLHJH WKH GRRUV DQG IURP WKHLIWKH  
KDV DYHUDJH EXVLQHVV FDSDFLWLHV ZI  
KH HPSORIV

+H LV WKXV DEOH WR OD\ E\ D VQXJ OL  
OXFUDWLYH WUDGH DQG KDV 3EXVLQHVA\  
E\ GRXEOLQJ WKH QXPEHU RI PHQ KH H[S  
6R KH EHFRPHV D SHUVRQDJHR URG MPFSRU  
WR RWKHU<sup>2</sup> WRUWRQ DORHFDQ PDJQDWHV W  
GLJQLWDMKHLV: PRQH\ KH FDQ 3PDUU\ PF  
DQG FKRRVH SODFHV IRU KLV FKLOGUHQ  
IURP WKH \*RDYHURQWHUDFW IRU WKH DUP\  
EUHHGV JROG WRLOH DHAQ ODUWVURZUDUSHEJ  
WKH 6WRFN ([FKDQJH JLYHV KLP KLV JU  
1LQH WHQWKV RI WKH JUHDW IRUWXQH\  
\*RHU KDV VKRZLQKSHVWKH UHVXOW RJIH

VFDQH DVVLVWHG E\ WKH 6WDWH ,Q (XU  
RXU PRQDUFKLHV DQG UHSXEOLFV KDYH  
RI EHFRPLQJ D PLOOLRQDLUH

7KLV LV WKH VHFUHW RI ZHDOWK ILQG  
D FURZQ DQG PDNH WKHP SURGXFW ~~PHDWH~~  
IRUWXQH E\ WKHVH PHDQV DQG WKHQ LQ  
PDGH ZLWK WKH KHOS RI WKH 6WDWH

1HHG ZH JR RQ WR VSHDN RI VPDOR IRU  
IRUHWKRXXJKW ~~DQGHQZHXNDORZ~~ WKDW PHU  
QRWKLQJ VR ORQJ DV WKH SHQFH VDYH

7DNH D VKRHPDNHU WDWQH \*UDQW WKDV  
KDV SOHQW\ RI FXVWRP DQG WKDW E\ G  
E\ IURP HLJKWHHQ SHQFHSW ~~WBRKDSR~~ ~~WKLRO~~

\*UDQW WKDW RXU VKRHPDNHU LV QHYH  
LQ VSLWH RI KLV SDVLRQ IRU HFRQRP\  
FKLOGUHQ WKDW KH GRHV QRW GLH RI F  
HYHU\WKLQJ \RX SOHDVH

: HOO DW WKH DJH RI ILIW\ KH ZLOO QF  
ZLOO QRW KDYH HQRXJK WR OLYH RQ GX  
\$VVXUHGO\ WKLV LV QRW KRZ IRUWXQH  
VRRQ DV KH KDV ODLG E\ D IHZ SHQFH V  
EDQN DQG WKDW WKH VDYLQJV EDQN OH  
WR <sup>3</sup>HPSORL ~~OWRRXLSORLW~~ ~~WKR~~ ~~XSRR~~ ~~KRHF~~  
DSSUHQWLFH WKH FKLOG RI VRPH SRRU  
LQ ILYH \HDUV <sup>1</sup> WLPH KLV VRQ KDV OHDL  
OLYLQJ

0HDQZKLOH RXU VKRHPDNHU GRHV QRW  
VRRQ WDNHV D VHFRQG DQG WKHQ D WK  
RU Wkuhh ~~ZBRUQZUPHW~~ KHV WKDQIXO  
GD\ IRU ZRUN WKDW LV ZRUWK ILYH VKLC  
WKDW LV ~~WKR~~ ~~WDA~~ NHHQ HQRXJK DQG PHDQ  
DSSUHQWLFHV ZLOO EULQJ KIRPYHQ ~~QHQ~~ ~~QHQ~~  
SURGXFW RI KLV RZQ ~~WKR~~ ~~WDA~~ ~~WDA~~ ~~WDA~~  
EHFRPH ULFK DQG QR ORQJHU KDYH DQ\  
RI OLIH +H ZLOO OHDYH D VQXJ OLWWOF

7KDW LV ZKDW SHRSOH FDOO <sup>3</sup>EHLQJ HF  
KDELWV ' \$W ERWWRP LW LV QRWKLQJ PI

SRRU

&RPPHUFH VHHPV DQ H[FHSWLRQ WR W  
<sup>3</sup>EX\ V WHD LQ &KLQD EULQJV LW WR )UD  
RQ KLV RULJH EDKORXWSDR LWHG QRERG\  
1HYHUWKHOHV V WKH ,FDXHLPHUXKDWL  
EDOHV RQ KLV EDFN ZHOO DQG JRRG ,C  
KRZ IRUHLJQ WUDGH ZDV FRQGXFWHG D  
RI IRUWXQH DWUQIRZUDQG\YH\ KDUGO\  
FRLQV ZKLFK WKH PHGLHYDO PHUFKDQW  
YR\DJH ,W ZDV OHVV WKH ORYH RI PRQH  
WKDW LQVSLUHG KLV XQGHUWDLQJV

1RZDGD\ V WKH PHWKRIGUEFKDQWSZKHU KD'  
QRW VWLU IURP KLV GHFNWHROEHHFBSKVZV  
KLP WR EX\ D KXQGUHG WRQV RI WHD KI  
WKUHH PRQWKV LI LW LV D VDLQLQ V+KL  
QRW HYHQ WDNH WKH ULNVV RI WKH YR\  
DQG LI KH KDV H[SHQGHG IRXU WKRXVDQ  
RU VL[ WKRXVDQGI M/KDVLQRRD\WHPS  
QRYHO FRPPRGLWLHV LQ ZKLFK FDVH KI  
IRUWXQH RU ORVLQJ LW DOWRJHWKHU

1RZ KRZ FRXOG KH ILQG PHQ ZLOOLQJ V  
DQG EDFN WR HQGXUH KDUGVKLS DQG V  
PLVHUDEOH SLWWDQFH" +RZ FRXOG KH II  
XQORDG KLV VKLSV IRU <sup>3</sup>VWDUYDWLRQ ZI  
VWDUYLQJ \*R WR WKH VHDSRUWV YLVL\  
DQG ORRN DW WKHVH PHQ ZKR KDYH FRP  
WKH GRFN JDWHV ZKLFK WKH\ EHV LHJH  
WR ZRUN RQ WKH YHVHVOV /RRN DW WK  
YR\DJH DIWHU ZHHNV DQG PRQWKV RI ZI  
JRQH WR WKH VHD LQ VKLSV DQG WKH\  
SHULVKHG LQ WKH ZDYHV

(QWHU WKHLU KRPHV ORRN DW WKHLU  
NQRZV QRW KRZVWULHVOXWQHDDQWKRR ZLOC  
TXHVWLRQ

OXOWLSO\ H[DP SOHV FKRRVH WKHP ZKI  
DOO IRUJWXQH WPODDO ZKHWKHU DULVLQJ  
PDQXIDFWXUHUV RU WKH ODQG (YHU\ZK

ZHDOWK\ VSULQJV IURP WKH VSRV HZUKWDR I  
VRFLHW\ QHHG QRW IHDU WKH DGYHQW F  
PLGVW ,I HYHU\ PHPEHU RI WKH FRPPXQ  
SURGXFWLYH WRLO KH ZLOO KDYH D ULJ  
SURFXUHV DQG WR WKRVH GHSHU VRXI  
RIHU WR DOO ZKR VHHN WKHP KH ZLOO (  
ZDJH 1R RQH ZLOO YROXQWHHU WR ZRU  
+LV JROGHQ JXLQHDV ZLOO EH XROXORRI  
YDULRXV SXUSRVHV EXW LQFDSDEOH RI  
,Q DQVZHULQJ WKH DERYH REMHFWLRQ  
VFRSH RI ([SURSULDWLRQ ,W PXVW DS<sup>2</sup>S(  
EH KH ILQDLOFLRULQDQW BDRSUGRSULDWH '  
RWKHUV WRLO 2XU IRUPXOD LV VLPSON  
: H GR QRW ZDQW WR URE DQ\ RQH RI KL  
ZRUNHUV DOO WKRVH WKLQJV WKH ODFN  
WKH H[SURGXWHU ZLOO GR RXU XWPRVW W  
D VLQJOH PDQ VKDOO EH IRUFHG WR VHC  
EDUH VXEVLVWHQFH IRU KLPVHOI DQG KI  
WDON RI ([SURSULDWLRQ WKLV ZLOO EH  
FRPLQJ ZH ORRN QRW b` \HDUV KHQFH

### III

7KH LGHDV RI \$QDUFKLVP LQ JHQHUDO D  
PXFK PRUH V\PSDWK\ WKDQ ZH DUH DSW  
LQGHSHQGHHQDQW BDRSUGRSULDWH ZKRP LGOH  
LGHDO <sup>3</sup>6WLOO ' RXU IULHQGV RIWHQ ZL  
+XPDQLW\ FDQQRW EH RKRQJHQDLGD  
\RXU VFKHPHV RI ([SURSULDWLRQ LDOGE\$H  
DFKLHYLQJ QR SHUPDQHQW UHVXOW '  
1RZZKDW ZH IHDU ZLWK UHJDUG WR ([S  
: H DUH DIUDLG RI QRW JRLQJ IDU HQRXJ  
VPDOO D VFDOHHWR XEIGODR W LQJYH WKH

DUUHVWHG LQWR LFGKFDXUHWUWVHOI LQ KDC  
FRQWHQW QR RQH DQG ZKLOH SURGXFD  
VWRSSLQJ LWV FXVWRPDU\ DFWELZRWOE V  
PHUHO\ VSUHDG JHQHUDO GLVFRQWHQW  
WULXPSK RI UHDFWLRQ

7KHUH DUH LQ IDFW LQ D PRGHUQ 6WI  
SUDFWLFDOO\ LPSRVVLEOH WR PRGLI\ LI  
DUH ZKHHOV ZLWKLQ ZKJHOLYDMLR QUDFKL  
VR FRPSOH[ DQG LQWHUGHSHQGHQW WKI  
GLVWXUELQJ WKH ZKROH 7KLV EHFRRPHV  
H[SURSULDWH DQ\WKLQJ

/HW XV VXSSRVH WKDW LQ D FHUWDLQ  
HIIHFWHG )RU H[DPSOH WKDW DV LW KD  
WKH SURSHUW\ RI WKH JUHDW ODQGORU  
XQWRXFKHG RU WKHWRXVLIQ SURSHUWDLQV  
&RPPXQH EXW HYHU\WKLQJ HOVH LV OHI  
PDQXIDFWXULQJ FHQWUH WKH IDFWRULF  
LQWHUIHUG ZLWK

7KH VDPH UHVXOW ZRXOGWIRIDREZOHQVK  
LQGXVWULDO V\VWHP ZIDOKRLXQV WWHR QHC  
, QGXVWU\ DQG ILQDQFH ZRXOG EH DW D  
SULQFLSOHV RI MXVWLFH ZRXOG QRW KD  
LWVHOI SRZHUOHVV WR FRQVWUXFW D KI  
, I DJULFXOWXUH ZHUH IUHHG IURP JUHI  
UHPDLQHG WKH ERQG VODYH RI WKH FDS  
QRWKLQJ ZRXOG EH DFFRRPSOLWKRIGD\7QR  
KDYLQJ WR SD\ UHQW WR WKH ODQGORU  
FRQGLWLRQV +H LV H[SORLWHG E\ WKH  
FURZQ IRU D VSDGH ZKLFK PHDVXUH E'  
PRUH WKDQ VL[SHQFH +H LV WD[HG E\ W  
IRUPLGDEOH KILFUDDOK\DRIGRILQGV LW QF  
H[SHQVLYEHDFUXVH WKH WUDGHUV RI DOC  
IRU WKH PDUNHWV DQG DQ\ GD\ D OLWW  
VRPH SDUW RI \$VLD RU \$IULFD PD\ UHVX

7KHQ DJDLQ WIKHUSDREBQWKNXGHSRSXOI  
WKH \RXQJ SHRSOH DJHHFDVQW UDDFWXUJL QWR  
RI KLJK ZDJHV SDLG WHPSRUDULO\ E\ RWK

WKH DWWUDFWLRQV RI D PRUH VWLUULQ  
WKH LQGXVWULDO H[SORLWDWLRQ RI IRL  
MREELQJLFWKHGRI LPSURYLQJ WKH VRLC  
SURGXFWWRWKHVH DJHQFLHV FRPELQH Q  
DJULFXOWXUH ZKLFK LV EXUGHQHG QRW  
RI FRQGLWLRQV LQ D VRFLHW\ EDVHG RC  
H[SURSULDWLRQ RI ODQG ZHUH DFFRPSO  
VRLO DQG FXOWLYDWH LW WR WKH EHVW  
HYHQ WKRXJK ~~EXVKRFDG~~ ~~EQOR~~ PHDQV I  
JUDQV ~~FRPH~~ PHQWU\ ~~SRXOSHV~~ ~~RO~~ IDOO ED  
ZKLFK LW ILQGV ~~KLW~~ ~~KRO~~ ~~HW~~ ~~W~~ ~~Q~~ ~~D~~ ~~Q~~ ~~J~~ ZRXOG  
DJDLQ ZLWKILQ ~~KOMD~~ ~~VHG~~ GLI

7KH VDPH KROGV ~~W~~ ~~N~~ ~~K~~ ~~H~~ ~~W~~ ~~K~~ ~~I~~ ~~H~~ ~~L~~ ~~E~~ ~~R~~ ~~G~~ ~~X~~ ~~V~~ ~~M~~ ~~U~~ ~~X~~ ~~H~~ ~~F~~  
WXUQLQJ WKH DJULFXOWXUDO ODERXUHI  
IDFWRULHV WR WKRVH ZKR ZRUP ~~Q~~ ~~X~~ ~~I~~ ~~D~~ ~~V~~ ~~K~~ ~~H~~  
OHDYH WKH ODQGORUG KLVW ~~K~~ ~~H~~ ~~Q~~ ~~B~~ ~~H~~ ~~U~~ ~~F~~ ~~K~~ ~~H~~ ~~D~~ ~~G~~  
([FKDQJH PDLQWDLQ WKH VZDUP RI LGO  
ZRUNPHQ WKH WKRXVDQG DQG RQH PLG  
RIILF ~~D~~ ~~Q~~ ~~G~~ LQGXVWU\ ZRXOG FRPH WR D V  
WKH PDVV RI SHDVDQWV ZKR ZRXOG UHP  
PDWHULDO DQG XQDEOH WR H[SRUW WK  
VWRSSDJH RI WUDGH DQG VWLOO PRUH  
ZRUOG WKH PDQXIDFWXUHUV ZRXOG IHH  
ZRUNHUV ZRXOG EH WKURZQ XSRQ WKH \  
UHDG\ DQG ZLOOLQJ WR VXEPLW WR WKH  
WKH\ ZRXOG HYHQ FRQVHQW ~~X~~ ~~Q~~ ~~R~~ ~~G~~ ~~H~~ ~~H~~ ~~S~~ ~~X~~ ~~U~~ ~~R~~ ~~G~~  
JXDUDQWHHG ZRUN

2U ILQD ~~V~~ ~~X~~ ~~S~~ ~~R~~ ~~V~~ ~~H~~ \RX RXVW WKH ODQGRZ  
IDFWRULHV ~~W~~ ~~R~~ ~~L~~ ~~W~~ ~~K~~ ~~R~~ ~~X~~ ~~Z~~ ~~R~~ ~~U~~ ~~N~~ ~~H~~ ~~U~~ ~~I~~ ~~H~~ ~~U~~ ~~L~~ ~~Q~~ ~~J~~ ~~Z~~ ~~L~~ \  
ZKR GUDLQ WKH SURGXFW RI RXU PDQXII  
PHDW DQG JURFHULHV LQ RXU JUHDW F  
H[FKDQJH RI SURGXFW LV VODFNHQHG D  
EUHDG ZKLOH WKH JUHDW PDQXIDFWXUL  
RI OX[XU\ ~~W~~ ~~K~~ ~~W~~ ~~K~~ ~~S~~ ~~U~~ ~~R~~ ~~G~~ ~~X~~ ~~F~~ ~~H~~ ~~H~~ ~~U~~ ~~H~~ ~~Y~~ ~~R~~ ~~O~~ ~~X~~ ~~W~~ ~~L~~ ~~R~~ ~~Q~~  
ZRXOG FRPH WUHDGLQJ XSRQ WKH VODL  
VKRW DQG VKHOJ ~~H~~ ~~V~~ ~~Q~~ ~~R~~ ~~G~~ ~~S~~ ~~U~~ ~~R~~ ~~G~~ ~~F~~ ~~U~~ ~~L~~ ~~S~~ ~~W~~ ~~U~~ ~~R~~ ~~Q~~ ~~V~~  
ZHUH VHHQ LQ )UDQFH LQ ahae ahdh DQ

\$OO LV LQWHUGHSHQGHQW LQ D FLYLOI  
RQH WKLQJ ZLWKRXW DOWHULQJ WKH ZK  
VWULNH DW SULQGMUH SQRBQHWR LRV  
LW ZLOO EH REOLJHG WR DWDFN WKHP  
LPSRVH LW

%HVLGHV HYHQ LI LW ZHUH GHVLUHG  
FKDQJH WR D SDUWLDO H[SURSULDWLRQ  
3URSHUW\ LV VKDNHQ QR DPRXQW RI W  
KHUH E\ WKH VODYHV RI WKH ILHOG WKH  
,I D JUHDW WRZQ 3DULV IRU H[DPSON  
SRVVHVLRQ RI WKH GZHOOLQJ KRXXHV  
GHQ\ WKH ULJKW RI WKH EDQNHUV WR OI  
...b `````` LQ WKH IRUP RI LQWHUHVW IR  
REOLJHG WR SXW LWVHOI LQ WRXFK ZLW  
LQHYLWDEWKXSHDVDQWV WR IUHH WKHP  
ZRXOG EH QHFHVVDU\ WR FRPPXQDOLJH  
IRRG DQG ZRUNRDSGHYDQWOWKH ZDVWH  
DJDLQVW WKH WUXVWV RI FRUQ VSHFXOI  
&RPPXQH RI agicLWOZORXOSUNKDYH WR SOD  
WKH ZRUN RI VWRFNLQJ LWV ZDUHKRXVH  
WKH SURGXFH

6RPH 6RFLDOLVWV VWRHO/WBEO LKRDH  
FRXUVH WWHWRLO WKH PLQHV WKH  
H[SURSULDWHG WKHVH DUH WKH LQVWU  
VKRXOG FRQVLGHU W%KXV SXLEOLLFOSUVRBIB  
FORWKHV DQKRGZHG OIHPDLQ SULYDWH S  
3RSXODU FRPPRQ VHQVH KDV JRW WKH  
DUH QRW VDYDJHV ZKR FDQ OLYH LQ WKI  
EUDQFKHV 7KH FLYLOLJHG PDQ QHHGV D  
WUXH WKDW WKH EHG WKH URRP DQG V  
SURGX%KXV IRU WKH ZRRNSIWRSHUO\ KHDV  
PXFK DQ LQVWUXPHQW RI SURGXFWLRQ I  
ZKHUH WKH QHUYHV DQG VLQHZV JDWKHI  
7KH UHVW RI WKH ZRUNPDQ LV WKH GDLC  
7KH VDPXPHQW DSSOLHV HYHQ PRUH RE  
HFRQRPLVWV ZKR PDNH WKH MXVW PHQ\  
WKDW WKH FRDO EXUQW LQ D PDFKLQH L



PDWHULDO LWVHOI +RZ WKHQ FDQ IRRG  
GR QR ZRUN EH H[FOXGHG IURP WKH OL'  
SURGXFHU" &DQ WKLV EH D UHOLF RIVUIH  
LV LQGHHG D PDE\KWHW KH DXP & URI WKH ZF  
SDUW RI SURGXFWLRQ DV WKH IXHO EXU  
7KH VDPH ZLWK DORWQRLO J1HZ \*XLQHD V  
GDLQW\ JRZQV RI RXU ODGLHV P\K\WU HDL  
QHYHUWKHOHV D FHUWDLQ TXDQIWZLWFR  
QHFHVVLW\ RI OLIF\KMRV WIKUHS DQG XFH BX\  
KLV ZRUN WKH MDFNHWWKMRVLOLSWHRDMDQ  
WR KLP DV WKH KDPPHU WR WKH DQYLO  
:KHWKHU ZH OLNH LW RU QRW WKLV LV  
\$V VRRQ DV WKH\ KDYH PDGH D FOHDQ V  
ILUVW RI DOO WR HQVXUH WR WKHFWQY  
FORWKHM RI FDSLWDOLVW UHQW  
\$QG WKH SHRSOH ZLOO EH ULJKW 7KH  
PRUH LQ DFFRUGDQFH ZLWK VFLHQFH WK  
PDQ\ GLVWLQFWLRQV EHWZHHQ LQVWUXF  
FRQVXPSWLRQ 7KH SHRSOH XQGHUVWDC  
5HYROXWLRQ RXJKW WR EHJLQ DQG WKH  
HFRQRPLF VFLHQFH DZREWHQ FMKZK QDKP H\KJ  
6WXG\ RI WKH 1HHGGR R+ XFKHQ LWR\QRPLF  
WKHP

)^^}

,

,I WKH FRPLQJ 5HYROXWLRQ LV WR EH D  
 GLVWLQJXLVKHG IURP DOO IRUPHU XSUL'  
 PHWKRRGDW WDLQ D QHZ HQG QHZ PHDQV  
 7KH WKUHH JUHDW SRSXODU PRYHPHQW  
 WKH ODVW KXIDG UIHU RHHDFK GLWKHU LQ P  
 RQH FRPPRQ IHDWXUH

,Q HDFK FDVH WKH SHRSOH VWURYH WR  
 KHDUHQ IURRG IRU WKH FDXVH 7KHQ DIWH  
 WKH\ VDN DJDLQ \$L\*QWRURQPHQWLWRPSR\  
 OHVV KRQHVV ZDV IRUPDGLDQG QGZHUH  
 5HSXEOLF LQ agic /DERXU LQ ahdh WKH  
 -DFRELQ LGHDV WKLW \*RYHUQPHQW RFF.  
 TXHVWLRQV VDFKLDDWWRQ BHWKH PDFKL  
 SXULI\LQJ RI WKH DGPLQLVWUDWLRQ Wk  
 OLEHDQG VXFK PDWWHUV V, WOLXEW UNXHS W  
 PHPEHUV RI WKH QHZ \*RYHUQPHQW DQG  
 %XW HYHQ LQ WKHVH FOXEV ZKHWKHU V  
 ZRUNLQJ FODVVHV LW ZDV DOZD\V PLGG  
 GLVFXVVHG YDULRXV SROLWLFDJR WXM R W  
 WKH TXHVWLRQ RI EUHDG

\*UHDW LGHDV VSUDQJ XS DW VXFK WLP  
 ZRUGV ZHUH VSRNHQ ZKLFK VWLOO VWLL  
 FHQW%W WKH SHRSOH ZHUH VWDUYLQJ  
 )URP WKH YHU\ FRPPHQFHPHQW RI WKH  
 FDPH WRWKNWRSFXODWLRQ RI SURGXFH

FRQFHDOHG LW<sup>2</sup>WKHI H7KSDRGDHOJ WUK LQJ WF  
WLP HV KH IDWWHQH G RQ KLV GLYLGHQG  
ZUHWFKHGHQHV V DURXQG EXW WKH ZDJH  
PRXW~~Q~~W NQRFNHG DW WKH GRRU

)DPLQH ZDV DEUR~~ADG~~FLQDW~~FK~~GHOD~~Q~~Q KDG K  
XQGHU WKH ROG UHJLPH

<sup>3</sup>7KH \*LURQGLVWV DUH VWDUYLQJ XT~~VD~~L  
LQ agic DQG WKHUHXS RQ WKH \*LURQGLV  
ZHUH JLYHQ WR <sup>3</sup>WKH ORXQWDLQ' DQG W  
FRQFHUQH G LWVHOI ZLWK WKH TX~~R~~U~~V~~WR  
3DULWR~~Q~~W /)RXFKp DQG &ROORW G~~+~~HUE  
WKH VXPV VSHQW RQ ILOOL~~Q~~BLM~~Q~~MP ZKH  
FRXQFLOV P~~DR~~GH~~V~~U~~W~~B~~V~~S~~U~~RFXUH FRUQ W  
ZHUH K<sup>2</sup>~~DD~~GH~~V~~WLOO WKH SHRSOH ODFNHC

7KHQ WKH\ WXUQH G RQ WKH UR\DOLVW  
GRR~~U~~KH\ JXLOORWLQH G B~~V~~GR~~J~~Y~~H~~D~~Q~~RU~~V~~ ID~~Q~~MG  
DOLNH HVSHFLDOO\ VHUYDQWV IRU WKH  
WKH\ KDG JXLOORWLQH G D KXQGUH~~V~~ G Z~~R~~X  
KDYH EHHQ HTXDOO\ KRSHOHVV

7KH ZDQW R~~OU~~ WKH~~Z~~ZDJH HDUQHU FDQ  
DQG WKH ZDJH ZDV QRWHE~~B~~H~~U~~WKH~~F~~FR~~L~~Q~~U~~G :I  
FRUSVHV PRUH RU OHVV PDNH WR KLP"

7KHQ WKH SHRSOH EH~~P~~SD~~R~~QP~~W~~IRK~~J~~UR~~Z~~\Z~~H~~D  
5HYROX~~W~~L~~Q~~H<PRUH ZUHWFKHG WKDQ H'  
UHDFWLRQDU\ LQ WKH~~S~~H~~I~~Q~~E~~D~~O~~L~~V~~WR~~V~~OWK~~E~~\Z~~O~~RU~~U~~  
FRXUDJH~~H~~G~~P~~UR~~P~~ WKHLU KLGLQJ SODFHV  
IDFH RI WKH VWDUYLQJ PXOWLWXGH 7KH  
WKH ZRUNHUV <sup>3</sup>&RPH HQRXJK RI WKLV I  
5HYROXWLRQ"

\$QG VLFN DW KHDUW KLV SDWLHQFH C  
DGPLW WR KLPVHOI WKDW WKH FDXVH ZC  
KRYHO DQG DZDLWHG WKH ZRUVW

7KHQ UHDFWLRQ SURXGO\ DVVHUWHG L  
FRXQWHUUHYROXWLRQDU\ VWURNH 7KH  
WUDPSOH LWV FRUSVH XQGHU IRRW

7KH :K~~H~~W~~H~~RU EHJDQ %ORR~~W~~K~~O~~R~~Z~~H~~L~~G~~O~~H  
QHYHU LGOH WKH SULVRQV ZHUH FURZG

UHVXPHG LWV ROG FRXUVH DQG ZHQW R  
7KLV SLFWXUH LV W\SLFDO RI DOO RXU  
SODFHG <sup>3</sup>WKUHH PRQWKV RI VWDUYDWLR  
KDYLQJ UHDFKHG WKH OLPLW RI WKHLU ;  
GHVSHIURDWOH IRIUW ZKLFK ZDV GURZQHG LC  
&RPPXQH SHULVKHG IRU ODFN RI FRPEDV  
VHSDUDWLRQ RI &KXUFK DQG 6WDWH EX  
PHDVXUHV IRU SURYLGLQJ WKH SHRSOH  
3DULV WKDW pOpJDQWHV DQG ILQH JHQW  
ELG WKHP JR VHOO WKHLU OLYHV IRU D  
WR IHDVW DW WKHLU HDVH LQ IDVKLRQD  
\$W ODVW WKH &RPPXQH VDZ LWV PLVWI  
%XW LW ZDV WRR ODWH ,WV GD\ V ZHUH  
9HUV DLOOHV ZHUH RQ WKH UDPSDUWV

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<sup>3</sup>%UHDG LW LV EUHDG WKDW WKH 5HYRO  
/HW RWKHUV VSHQG WKHLU WLPH LQ LV  
GHFRUDWLQJ WKHPVHO\FYD\ OBOGVDFZL  
SROLWLF\ OLEHUW\  
%H LW RXUV WR VHH IURP WKH ILUVW  
SURLQFHV ILJKWLQJ IRU IUHHGRP WKD  
EUHDG QRW D VLQJOH ZRPDQ FRPSHOH  
RXWVLGH WKH ENKRWKDSIOG DRERDUVH C  
LQ FKDORW\ D VLQJOH FKLOG SLQLQJ IRU  
,W KDV DOZD\V EHHQ WKH PLGGOH FOD'  
SULQF\ SODW OLHV UDWKHU  
7KH LGHD RI WKH SHRSOH ZLOO EH WR  
FODVV FLWLJHQV DQG ZRUNPHQ LQIHVV  
RZQ UKHWR DIONLQJWKHSX ' DQG <sup>3</sup>SUDFW  
HGGOHVV GLVFXVLRQV RQ IRUPV RI JRY  
ZH VKDOO KDYH WR FRQVLGHU WKH TXHV  
: H KDYH WKH WHPHULW\ WR GHFODUH V  
EUHDG HQRXJK IRU DOO DQ %HDKDWRWKSAC  
5HYROXWLRQ ZLOO WULXPSK

7KDW ZH DUH 8WRS LDQV LV ZHOO NQRZQ  
 OHQJWK RI EHOLHYLQJ WKDW WKH 5HYRC  
 IRRG DQG F~~ORW~~W~~KH~~W~~DW~~R~~I~~W~~D~~H~~O~~P~~H~~O\ GLVSOI  
 FLWL]HQV ZKDWHYHUR~~W~~W~~K~~H~~H~~\ S~~D~~U~~H~~W~~T~~ X~~F~~R~~A~~  
 LW LV QRW HDV\ WR NHHS WKH XSSHU KE  
 \$OO WKH VDPH ZH PDLQWDLQ RXU FRQ  
 SHRSOH RI WKH 5HYROXWLRQ DQG WKH  
 DOO RWKHU TXHVWLRQV ,I LW LV VHWWC  
 5HYROXWLRQ ZLOO EH RQ WKH ULJKW UR  
 PXVW DFFHSW WKH SZKLQFKL S~~O~~ ~~O~~R I R~~U~~T~~F~~X~~H~~ ~~O~~  
 H[FOXVLRQ RI HYHU\ RWKHU VROXWLRQ  
 ,W LV FHUWDLQ WKDW~~W~~W~~K~~H~~I~~ E~~R~~ ~~P~~W~~L~~Q~~D~~W~~S~~ HUY  
 5HYROXWLRQ~~Z~~Q~~O~~ ~~E~~X~~D~~U~~V~~W XSRQ XV LQ WKH  
 FULVLV 7KLQJV KDYH EHHQ V~~H~~E~~O~~ ~~W~~K~~L~~Q~~D~~W~~S~~  
 IURP EDG WR ZRUVH (Y~~H~~Q~~H~~Z~~K~~Q~~D~~W~~W~~R~~H~~Q~~G~~N  
 OLVWV RI LQWHUQDWLRQDO WUDGHV DQG  
 PDUNHWV ZDUV WD[HV HYHU LQFUHDVLI  
 PRUUR~~D~~Z~~G~~ KXJH FRORQLDO XQGHUWDLQ  
 7KHUH DUH PLOOLRQV RI XQHPSOR\HG ;  
 ZLOO EH VWLOO ZRUVH ZKHQ 5HYROXWLF  
 ODLG WR D WUDZ~~Q~~R~~Q~~X~~P~~O~~S~~I~~R~~Z~~R~~I~~H~~W~~K~~H RXW  
 GRXEOHG DV VRRQ DV WKH EDUULFDGHV  
 6WDWHV :KDW LV WR EH GRQH WR SURY  
 : H GR QRW NQRZ ZKHWKHU WKH IRON Z  
 KDYH HYHU DVNHG WKHPVHOYHV WKLV T;  
 NQRZ WKDW WKH\ ZLVK WR PDLQWDLQ W  
 H[SHFW WR KDYH <sup>3</sup>QDWLRQDO ZRUNVKRS'  
 PHDQV RI JLYLQJ IRRG WR WKH XQHPSOR  
 %HFDXVH QDWLRQDO ZRUNVKRSV ZHUH  
 VDPH PHDQV ZHUH UHVRUWHG ,W~~R~~X~~I~~E~~G~~ ~~H~~A~~M~~  
 FRQWHQWLQJ WKH 3DULVLDQ SUOHWDU  
 ZRUR~~X~~K~~L~~F~~K~~ FRVW 3DULV WRGD\ LWV GHEW  
 RI WKUHH RU IRX~~U~~E~~S~~R~~X~~Q~~G~~H~~V~~ ~~D~~K~~K~~N~~D~~H~~G~~ FHOO

WKH EHDVW' ZDV FXVWRPDU\ LQ 5RPH D  
ODVWDFDXVH GHVSRWV NLQJV DQG HPS  
RI WKURZLQJ D VFUDS RI IRRG WR WKH S  
ZKESW LV QDWXUDO WKDW 'SUDFWLFDQ'  
SHUSHWXDWLQJ WKH ZDJH V\ VWHP :KDW  
WKH WLPH KRQRXUHG PHWKRQ RI WKH 3h  
<HW VKRXOG WKH 5HYROXWLRQ EH VR P  
ZRXOG EH ORVW

,Q ahdh ZKHQ WKH QDWLRQDO ZRUNVKI  
XQHPSOR\HG RI 3DULV QXPEHUHG RQO\ h  
DOUHDG\ LQFUHDVHG WR di `` 7KH\ ZRX  
FRXQWLQJ WKRVH ZKR FURZGHG LQ IURP

<HW DW WKDW WLPH WUDGH DQG PDQXI  
PDQ\ KDQGV \$DQWZHG DQ RZ WKDW LQ WLP  
DQG LQGIXMWRW IURP WKH HHDYHD RQX  
LQGHHG RI WKH QXPEHU RI ZRUNPHQ ZK  
LQGLUHFWO\ XSRQ H[SRUW WUDGH RU R  
SURGXFLQJ OX[XULHV ZKRVH FRQVXPHU

\$ UHYROXWLRQ LQ (XURSH PHDQV WKH  
KDOI WKH IDFWRULHV DQG ZRUNVKRSV ,  
IDPLOLHV WKURZQ RQ WKH VWUHHWV \$G  
WKLW WUXO\ WHUULEOH VLWXDWLRQ E\ F  
E\ PHDQV RI QHZ LQG XVULHV FUHDWHG  
XQHPSOR\HG

,W LV HYLGHQW DV 3URXGKRQ KDG DOI  
DJR WKDW WKH VPDOOHVW DWDFN XSR  
FRPSOH\WHDG\DWLRQ RI WKH V\ VWHP EDV  
ZDJH ODERFLUW\ LWVHOI ZLOO EH IRUFH  
HQWLDQW\WRQUHRUW WR PHHW WKH QHH  
FDQQRW EH DFFRPSOLWKHG LQ D BRQWK  
WLPH WRQUHRUW WKH V\ VWHP RI SURGXFWLF  
RI PHQ ZLOO EH GHSULYHG RI WKH PHDQ  
GRQH"

7KHUH LV RQOUBRQWREKOLQ RE RKGOSU  
WKH JUHDW WDVN ZKLFK DZDLWV XV DQ  
ZKLFK ZH RXUVHOYHV KDYH PDGJHQQJWHG  
SURGXFWLRQ RQ D QHZ EDVLV

7KXV WKH UHDOO\ SUDFWLFDQZFRXGVEH  
SHRSOH VKRXOG WDNH LPPHGLDWH \$RQW  
FRPPXQHV NHHSLQJ VWULFW DFFRXQW F  
WKDW E\ WKH DLG RI WKHVH DFFXPXODW  
WLGH RYHU WKH FULVLV 'XULQJ WKDW V  
ZLWK WKH IDFWRU\ ZRUNHUV WKH QHFH  
PHDQV RI VXEVLVWHQFH DVVXUHG WR W  
QHHGV RI WKH DJULFXOWXUDQSWXKODW  
)UDQFH ZHDYHV VLONV DQG VDWLQV WR  
(PSUHVV RI 5XVVD DQG WKH 4XHHQ RI  
IDVKLRQV ZRQGHUOXO WULQNHVV DQG S  
WZR WKLUGV RI WKH )UHQFK SHDVDQWU\  
RU WKH LPSOHPHQWV QHFHVVDUXQSWRQ  
ODQG RI ZKLFK ~~WRKOB~~ KDYSHOHWEH WXL  
DGYDQWDJH SRRU VRLOV HQULFKHG DQ  
V\WHP GR QRW ~~QRHQRD~~ ~~DXDHWK~~ RI Z  
ZRXOG EH VXEPLWWHG WR LQWHQVLYH F  
PDUNHW JDUGHQ RU D IORZHU SRW ,W L  
SUDFWLFDQ VROXWLRQ RI WKH SUREOHP  
RI FLUFXPVWDQFHV ZLOO EULQJ LW WR S

'''

7KH PRVW SURPLQHQW FKDUDFWHWKLVZDI  
V\WHP~~RLFK~~ LQ EULHI<sup>2</sup>DPRXQWV WR WKL  
\$ PDQ RU D JURXS RI PHQ SRVVHVVLQ  
LQGXVWULDO HQWHUSULVH KH XQGHUWI  
UDZ PDWHJULQJH ~~SRRG~~ XFWLRQ WR SD\ V  
ODVW~~W~~\SRFNHW WKH VXUSOXV YDOXH RL  
KLPVHOI IRU PDQDJLQJ WKH FRQFHUQ IF  
IRU WKH IOXFWXDWLRQV RI SULFH LQ WK  
7R SUHVHUYH WKLV V\WHP WKRVH ZKF  
UHDG\ WR PDNH FHUWDLQ FRQFHVVLRQV

SURILWV ZLWK WKH ZRUNHUV RU UDWKH  
ZRXOG REOLJH WKHP WR UDLVH ZDJHV ZI  
ZRXOG FRQVHQW WR FHUWDLQ VDFULFI  
WR GLUHFV LQG XVWU\ DQG WR WDNH LW  
&ROOHFWLYLVPG ~~PHVZQIRNQB~~EROLVK WKH  
LQWURGXFHV FRQVLGHUDEOH PRGLIFDV  
RQO\ VXEVLWXWHV ~~WKHP IS WRUWH~~RW ~~KHSU~~  
\*RYHUQPHQW QDWLRQDO RU ORFDO ~~BRU~~  
&ROOHFWLYLV LP LW LV WKH UHSUHVHQWD  
WKHLU GHSIXWLD ~~HOVDZGR~~RUH WR KDYHWWL  
ZKR UHVHUYH WR WKHPVHOYHV WKH ULJI  
SURGX ~~QVRIQ~~LQWHUHVW ~~WR~~ ~~DO~~ ~~DO~~ ~~LY~~ ~~RV~~  
VXEWOH EX ~~MDYFKUL~~IQUDGLVWLQFWLRQ EHW  
DQG RI WKH PDQ ZKR KDV OHDUQHGD FU  
FROOHFWLYLV ~~SOHW~~ZLW OH WKH ZRUN RI WKH  
WKH HQ ~~WLOHH~~PDQ ~~R~~W ~~VFL~~ ~~Z~~ ~~Q~~ ~~D~~ ~~W~~ ~~F~~ ~~B~~ ~~B~~ ~~S~~ ~~O~~ ~~D~~ ~~E~~ ~~R~~  
DQG LV HQWLWOHG WR D KLJKHU ZDJH %  
PHQ RI VFLHQFH DUH DOO<sup>2 3</sup>~~ZDQJL~~ ~~R~~ ~~H~~ ~~U~~ ~~O~~ ~~N~~ ~~D~~ ~~Q~~  
VDLG ~~OV~~ ~~R~~ ~~H~~ ~~DO~~ ~~G~~ WKH SLOO  
: HOO WKHQ WKH FRPLQJ 5HYROXWLRQ  
KXPDQLW\ WKDQ E\ PDNLQJ WKH ZDJH V\  
DQG E\ UHQGHULQJ &RPPXQLVP ZKLFKWLK  
RQO\ SRVVLEOH VROXWLRQ  
)RU HYHQ DGPLWWLQJ WKDW WKH &ROO  
V\ VWHP LV SRVVLEOH LI LQWURGXFHG J  
SH ~~D~~ ~~W~~ ~~K~~ ~~R~~ ~~X~~ ~~J~~ ~~K~~ IRU P\ SDUW , TXHVWLRQ LW  
FRQGE ~~W~~ ~~L~~ ~~R~~ ~~Z~~ ~~X~~ ~~O~~ ~~G~~ EHFRPH LPSRVVLEOH LG  
WKH QHHG RI IHHGLQJ KXQJU\ PLOOLRQV  
DUPV \$ SROLWLFDO UHYROXWLRQ FDQ E  
IRXQG DWLRQVE ~~R~~ ~~W~~ ~~L~~ ~~D~~ ~~G~~ ~~X~~ ~~H~~ ~~R~~ ~~O~~ ~~X~~ ~~W~~ ~~L~~ ~~R~~ ~~Q~~ ZKHUH  
SURSHUW\ ZLOO LQHYLWDEO\ SDUDO\ VH  
SXEOLF PRQH\ IO ~~B~~ ~~Z~~ ~~DO~~ ~~X~~ ~~U~~ ~~Q~~ ~~Z~~ ~~R~~ ~~X~~ ~~W~~ ~~R~~ ~~H~~ ~~R~~ ~~U~~ ~~S~~ ~~D~~ ~~X~~  
WR WKH PLOOLRQV RI RXW RI ZRUNV  
7KLV SRLQW FDQQRW EH WR ~~B~~ ~~D~~ ~~O~~ ~~L~~ ~~F~~ ~~Q~~ ~~W~~ ~~L~~ ~~R~~ ~~V~~  
LQG XVWU\ RQ D QHZ EDVLV DQG ZH VKD  
SUREOHP LV FDQQRW EH DFFR ~~R~~ ~~P~~ ~~S~~ ~~O~~ ~~M~~ ~~K~~ ~~H~~ ~~R~~ ~~G~~  
ZLOO WKH SHRSOH VXEPLW WR EH KDOI \



WXHRULVWV ZKR XSKR~~OV~~LVGK~~HRZ~~YD~~JH~~WK~~VH~~  
ZLOO GHPDQG ZKDW WKH\ KDYH <sup>2</sup>DOZD\ V (   
FRPPXQLJDWLR<sup>2</sup>~~Q~~WRH V~~X~~SS~~Q~~L~~RV~~ UDWLRQV  
,W ZLOO EH LQ YDLQ WR SUHDFK SDWLF  
DQG LI IRRG LV QRW IRUWKFRPLQJ WKH\  
7KHQ LI WKH SHRSOH DUH QRW VWURQ  
ZLOO EH VKRW GRZQ WR JLYH &ROORH~~FWK~~  
HQB~~G~~HUPXVW EH PDLQW~~DR~~Q~~G~~IG~~UDWF~~ID~~SO~~L~~SU~~  
\$QG DV WKH FDSLWDOLVWV ZLOO VRRQ L  
E\ WKRVH ZKR FDOO WKHPVHOYHV 5HYRC  
EHFRPH KDWHIXO LQ WKH H\HV RI WKH P  
VXSSRUW WR W~~R~~G~~H~~H~~U~~D~~R~~S~~W~~K~~R~~X~~J~~K WKH\ DI  
VXFK D OLQH RI FRQGXFW WKH FDSLWD~~C~~  
WKH FROOHFWLYLVWV LQ WKHLU WXUQ :  
WKH FRQVHTXHQFHV DUH HDV\ WR IRUHV  
<sup>3</sup>PDUDXGHUV ' WKH IDFWLRQ RI <sup>3</sup>RUGHU'  
PRE ' 7KH\ ZLOO VHW XS DJDLQ WKH ODZ  
PRVW DUGHQW UHYROXWL~~R~~Q~~L~~W, W ZL~~LOO~~  
DJDLQ

'R QRW O~~J~~H~~W~~ X~~K~~R Z~~R~~W H~~D~~F~~W~~L~~R~~Q WULX~~P~~L~~S~~K~~H~~  
<sup>3</sup>+pEHUWLWVWV' DQG <sup>3</sup>WKH P~~V~~~~R~~M~~Q~~ Z~~K~~R~~H~~P~~K~~  
ZLWK WKH PHPRU\ RI WKH VWUXJJOH IUH  
7KH 'DQWRQLVWV VRRQ IROORZHG WKHP  
JXLOORWLQHG WKHVH UHYROXWLRQDULH  
VFI~~R~~OG ZKHUHXSRQ WKH SHRSOH VLFN  
UHYROXWLRQ ORVW WKUHZ XS WKH VSR  
,I <sup>3</sup>RUGHU LV UH~~W~~K~~H~~U~~M~~B~~F~~L~~Z~~Q~~G~~PRFUD'  
DQDUFKLWV WKH )DEL~~D~~QV ZLOO KDQJ\  
EH KDQJHG E\ WKH UHDFWLRQDULHV DQ  
%XW HYHU\WKLQJ FRQILUPV JX~~V~~R~~L~~Q~~W~~K~~H~~S  
F~~D~~U~~U~~\ WKHP IDU HQRXJK DQG WKDW ZK  
RI DQDUFKLWV &RPPXQLVP ZLOO KDYH JI  
LGHD 7KH SHRSOH WKHPVHOYH~~D~~V~~Q~~~~G~~W~~K~~H~~E~~  
FRPPXQLVWV LV HYHU LQFUHDVLQJ DV V  
EHFRPHV PRUH DQG PRUH HYLGHQW  
\$QG LI WKH LPSHWXV RI WKH~~H~~S~~H~~R~~S~~Z~~L~~H~~O~~  
GL~~H~~U~~H~~QW WXUQ ,QVWHDG RI SOX~~Q~~D~~G~~H~~L~~V~~C~~

WKH QH[W WKH SHRSO FL R/L W/K H LLOO XUD N  
ZDUHKRXVHV WKHQFDVWORI DDONWWW SU  
WKH IRRG WR EH KDG 7KH ZHOO LQWHQ\  
ZLOO IRUP WKHPVHOYHV LQWR EDQGV RI  
WDVN RI PDNLQJ D URXJK JHQHUDO LQYH  
ZDUHKRXVH

,I VXFk D UHYROXWLRQ EUHDNV RXW LG  
IRXU KRXUV WKH &RPPXQH ZLOO NQRZ ZI  
VSLWH RI LWV VWDWLWLFDO FRPPLWWH  
VLHJH RWKahgTaXDQWLW\ RI SURYLVLRQV L  
PLOORQV RI FRSLHV ZLOO EH SUFLQW@  
DFFRXQW RI WKH DYDLODEOH IRRG WKH  
GLVWULEXWLRQ

,Q HYHU\ EORFN RI KRXVHV LQ HYHU\ V  
YROXQWHHUV ZLOO JHDY HDQHW KRUH FRP  
ILQG LW HDV\ WR ZRUN LQ XQLVRQ ,D QG  
-DFRELQ ED\ RQHWV GR QRW JHW LQ WKH  
WKHRULVWV GR QRW WKUXVW WKHPVHOY  
H[SRXQG WKHLU PXGGOHKHDGHG WKHRUI  
KDYH QR DQW SRUZH\ \$QG WKDW DQGLDWD  
LQKHUHQW LQ WKH SHRSOH DERYH DOO  
EXW ZKLFK WKH\ KDYH VR VHOGRP EHHQ  
LQ VR KXJH D FLW\ DV 3DULV DQG LQ W  
JXLOG RI IUHH ZRUNHUV UHdG\ WR IXUQ

\*LYH WKH SHRSOH D IUHH KDQG DQG L  
FRQGXFHWG ZLWK DGRQADW DRVUHZK D KUL  
SHRSOH KDUG DW ZRUN RQO\ WKRVH ZK  
WKH GRFXPHQWV FDQ GRQEWLQWJHSLXDM  
OLVXQGHUVWRRG ` WKH SHRSOH WR WKI  
RI WKH EDUULFDGHV RU LQ /RQGRQ GXU  
e```` VWDUYLQJ IRON KDG WR EH IHG D  
WR WKH LBO LQHSWQHVV RI %XPEOHGRP

\$QG HYHQ VXSSRVLQJ ZH KDG WR HQGX  
DQG FRQIXVLRQ IRU D IRUWQLJKW RU D I  
PXFk )RU WKH PDVV RI WKH SHRSOH LW  
IRUPHU FRQGLWLRQ DQG EHVLGHV LQ

FRQWHQWHGO\ HQRXJK RQ D ELW RI EUH  
HYHQWV

,Q DQ\ FDVH D V\ VWHP ZKLFK XGSHLQ JW  
LPPHGLDWH QHHG ZLOO EH LQILQLWHO\  
IRXU ZDOOV E\ KLGHERXQG WKHRULVWV

, 9

7KH SHRSOH RI WKH JUHDW WRZQV ZLOO  
WDNH SRVVHV VLRQ RI DOO WKH SURYLVL  
DQG JUDGXDOO\ H[WHQGLQJ &RPPXQLVP  
QHHGV RI DOO WKH FLWL]HQV 7KH VRRQ  
GRQH WKH OHVV PLVHU\ WKHUH ZLOO EH  
%XW XSRQ ZKDW EDVLDQ\ XW\ V\ RILGHU  
WKHLU GXH VKDUH RI IRRG SURGXFH" 7K  
RXWVHW

: H DQVZHU WKDW WKHUH DUH QR WZR ;  
ZKLFK &RPPXQLVP FDQ EH IRVDDROH ZBG  
VDWLVLHV RXU LQVWLQFWV RI MXVWLFH  
WKH V\ VWHP DOUHDG\ DGRSWHG E\ WKH  
7DNH IRU H[DP SOH D SHDVDQW FRPPXQH  
ZKHUH WKH -DFRELQV KDYH GRQH WKHLU  
WKH FRPPXQH SRVVHV VHV ZRRGV DQG FF  
RI ZRRG IRU DOO HYHU\ RQH FDQ WDNH I  
KLQGUDQFH WKDQ WKH SXEOLF RSLQLWU  
ZKLFK DUH DOZD\ V VFDUFH WKH\ KDYH V  
7KH VDPH ZLWK WKH FRPPXQDO SDVWXI  
VSDUH QR OLPLW LV SXW WR ZKDW WKH  
QRU WR WKH QXPEHU RI EHDVWV JUD]LQ.  
QRW GLYLGHG QRU LV IRGGHU G\$ROO\ W  
FRPPXQHV DQG VFRUHV RI WKRXV ZDQW  
LV FRPPXQDO SDVWXUH ODQG SUDFWLVI

\$QG LQ WKH FRXQWULHV RI (DVWHUQ (>  
QR VFDUFLW\ RI ODQG \RX ZLOO ILQG W  
WKHP DQG FXOWLYDWLQJ DV PXFK RI W  
WKRXJKW RI OLPLWKLQJHBFKWEDEHU RU R  
ZLOO EH DOORZDQFHG DQG WKH ODQG S  
WR LWV QHHGV DV VRRQ DV HLWKHU EH  
5XVVLD

,Q D ZRUG WKH V\WHP LV WKLW QR V  
SRVVHVHV LQ DEXQGDQFH EXW HTXDO  
FRPPRGLWLHV ZKLFK DUH VFDUFH RU DS  
LQKDELW (XURSH b` `` `` `` VWLOO IROO

,W LV D IDFW ZRUWK UHPDUNLQJ WKDW  
WRZQV LQ WKH GLVWULEXWLRQ RI RQH F  
DEXQGDQFH WKH ZDWHU VXSSOLHG WR I

\$V ORQJ DV WKHUH LV QR IHDU RI WKH  
WKLQNV RI FKHFNLQJ WKH FRQVXPSWLRQ  
SOHDVH %XW GXULQJ WKH JUHDW GURX.  
IDLQLQJ WKH ZDWHU FRPSDQLHV NQRZ V  
WKH IDFW E\ PHDQV RI D VKRUW DGYHU\

ZLOO UHGXFH WKHLU FRQVXPSWLRQ RI Z  
%XW LI ZDWHU ZHUH DFWXDOO\ VFDUFH  
EH KDG WR D V\WHP RI UDWLRQV 6XFK  
FRPPRQ VHQVH WKDW 3DULV WZLFH DVN  
VLHJHV ZKLFK LW XQGHUZHQW LQ ahga

,V LW QHFHVVDU\ WR JR LQWR GHWDLO  
GLVWULEXWLRQ RI UDWLRQV PD\ ZRUN V  
LQILQLWHO\ PRUH MXVW DQG HTXLWDEOI  
WDEOHV DQG GHWDLOV ZLOO QRW VHUYE  
DODV WKRVH RI WKH ZRUNHUV WDLQWH  
WKH SHRSOH DV D PRE RI VDYDJHV UHDE  
VRRQ DV WKH \*RYHUQPHQW VFDUFH WWRV  
QHYHU VHHQ WKH SHRSOH UHVROYH DQG  
D PRPHQW WKDW LI WKH PDVVHV ZHUH P  
GLVWULEXWH UDWLRQV WR HDFK DQG DC  
HTXLW\

,I \RX ZHUH WR JLYH XWWHUDQFH LQ D  
WKDW G<sup>2</sup>H O P F H D F Q G V<sup>3</sup> W K R X O L G H E H U H V H U Y H

SDODWHV RI DULVWRFUDWLF LGOHUV DC  
KRVSLWDOV \RX ZRXOG EH KLVVHG %XV  
VWUHHW FRUQHUV DQG LQ WKH PDUNHW  
RXJKW WR EH NHSW ~~PHV SWKH DQDNIBQGWII~~  
WKHUH DUH RQO\ ILYH EUDFH ~~DQGS DQWOUU~~  
VKHUMKH\ VKRXOG JR WR VLFN SHRSOH C  
VLFN FRPH WKH FKLOGUHQ )RU WKHP W  
UHVHUYHG LI WKHUH R W ~~QRW KLCORXUHKQI DU~~  
SLHFH RI PHDW DQG WR WKH VWURQJ P  
UHGXFHG WR WKDW H[WUHPW\

6D\LQ D ZRUG WKDW LI WKLW RU WKDW  
KDV WR EH GROHG RXW WR WKRVH ZKR  
WKDW DQG VHH LI \RX GR QRW PHHW ZLV

7KH PDQ ZKR LV IXOO IHG GRHV QRW XC  
XQGHUVWDQG DQG KDYH DOZD\ XQGHU  
KH LV WKURZQ RQ WKH VWUHHW DQG FRF  
ZLOO OHDUQ WR XQGHUVWDQG

7KH WK<sup>2</sup>HRULZKVP W ~~MXQORUPLDQG~~ WKH  
WDEOH DUHV ~~DVWZFRMGROLN~~ QR GRXEV  
1DWLRQDO .LWFKHQV DQG <sup>3</sup>6SDUWDQ %U  
DGYDQWDJHV WKHUHE\ JDLQHG WKH HFF  
NLWFKHQV ZHUH HVWDEOLVKHG ZKHUH  
VRXS DQG EUHDG DQG YHJHWDEOHV

: H GR QRW TXHVWLRQ ~~WKH VZH DGYDQWDJH~~  
HFRQRPLHV KDYH DOUHDG\ ~~EHDQ DRKLLHQ~~  
ZKHQ WKH KDQGPLOO ~~RURTYXHQDWDQDKM~~  
ZHUH DEDQ ~~GRDQGH~~ SHUIHFWO\ ZHOO W  
HFRQRPLFDO WR FRRN EURWK IRU D KXQ  
D KXQGUHG VHS ~~NUDZH LIGHW~~ WKDW WKH  
RI SUHSDULQJ SRWDWRHV EXW WKDW FF  
IDPLOLHV WKH\ ZRXOG EH MXVW DV JRRG

: H NQR<sup>2</sup>Q IDFW WKDW YDULHW\ LQ FRRN  
LQWURGXFHG E\ HDFK FRRN RU KRXXVZL  
KXQGUHGZHLJKW RI SRWDWRHV ZRXOG Q  
GUHVVLQJ DQG VHUYLQJ WKHP LQ DQ\ ZC  
PDGH IURP PHDW FDQ EH FRIDY ~~YHJHWDEOH~~ GRXQ  
KXQGUHG ~~HQ~~ WDWVHV

%XW WKRXJK ZH DUH TXLWH DZDUH RI [ RQH KDV D ULJKW WR IRUFH D KRXVHZLII NLWFKHQ UHGD\ FRRNHG LI VKH SUHIHUV KHU RZQ ILUH \$QG DERYH DOO ZH VKR PHDOV ZLWK ~~KU~~ ~~VZ~~ ~~LD~~ ~~PK~~ ~~OL~~ V IULHQGV RU F VHHPHG JRRG WR KLP

1DWXUD~~HO~~ ~~SO~~ ~~OX~~ ~~EO~~ DUF NLWFKHQV ZLOO VSUL UHVWDXUDQWV ZKHUH SHRSOH DUH SRL KRXVHZLIH JHWV WKH VWRFN ~~IB~~ ~~Q~~ ~~G~~ ~~K~~ ~~W~~ ~~U~~ ~~D~~ ~~R~~ LQWR ZKDWHYHU VRXS VKH OLNHV DQG KDYH D MRLQW URDVWHG RU DQ D ~~S~~ ~~S~~ ~~OR~~ ~~H~~ WULIOLQJ VXP WKXV HFRQRPLJLQJ WLPH NLW~~F~~ ~~M~~ ~~K~~ ~~HO~~ FRPPRQ EDNHK ~~RL~~ ~~X~~ ~~H~~ ~~V~~ ~~R~~ ~~V~~ ~~D~~ ~~IE~~ ~~OH~~ ~~V~~ ~~K~~ ~~I~~ FDQ JHW WKHLU IRRG FRRNHG ZLWKRXW FXVWRP ZLOO QR GRXEW EHFRPH JHQHUI WKH IXQGDPHQWDO SDUWV RI WKH PHDO LQGLYLGXDO WDVWH VKDOO VXJJHVW

%XW WR PDNH D KDUG DQG IDVW UXOH RXU IRRG UHGD\ FRRNHG WKDW ZRXOG E WKH LGHDV RI WKH ~~P~~ ~~R~~ ~~O~~ ~~M~~ ~~B~~ ~~O~~ ~~W~~ ~~L~~ ~~G~~ ~~H~~ ~~D~~ ~~K~~ ~~E~~ ~~F~~ ~~E~~ ~~D~~ E\ W\UDQQ\ RU VXSHUVWLWLRQ

:KR ZLOO KDYH D ULJKW WR WKH IRRG I ILUVW TXHVWLRQ ZKLFK ZH VKDOO KDYH DQVZHU IRU LWVHOI DQG ZH DUH FRQYL E\ WKH VHQWLPHQW RI ~~M~~ ~~X~~ ~~D~~ ~~O~~ ~~M~~ ~~J~~ ~~F~~ ~~H~~ ~~E~~ ~~S~~ ~~D~~ ~~W~~ ~~O~~ ~~R~~ GLVWXUEHG SHULRG ODVWV DQG ZKLOH LQYHWHUDWH LGOHUV DQG JHQXLQH ZRU IRRG RXJKW WR EH VKDUHG E\ DOO ZLWK HQHPLHV WR WKH QHZ RUGHU ZLOO KDVV FRPPXQH RI WKHLU SUHVHQFH %XW LW ` ZKLFK KDYH DOZD\V EHHQ PDJQDQLPRXV LQ WKHLU GLVSRVLWLRQ ZLOO EH UHGD ZLWK WKHP FRQTXHUNG DQG FRQTXHUH 5HYROXWLRQ WR EH LQVSLUHG E\ VXFK [ DJDLQ WKH DQWDJRQLVWV RI \HVWHUGD ZRUNVKRSV \$ VRFLHW\ ZKHUH ZRUN LV I LGOHUV

<sup>3</sup>%XW SURYLVLQRV ZLOO UXQ VKRUW LG  
<sup>3</sup>6R PXFK WKH ~~DEHZVHW~~ ZLOO SURYH WK  
 UHFRUG WKH SHRSOH KDYH KDG HQRXJK  
 IUHVK VXSSOLHV ZH VKDOO GLVFXVV WK

%\ ZKDW PHDQV FRXOG D FLW\ LQ D VWD  
 : H VKDOO DQVZHU WKLW TXHVWLRQ EXW  
 ZLOO GHSHQG RQ WKH FGDUDFWHU RI WK  
 QHLJKERXULQJ FRXQWULH ~~EHVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~  
 VKRXOG DFFRPSOLVK WKH 6RFLDQ ~~GHVW~~ ~~WVW~~ ~~WVW~~  
 WKRURXJKJRLQJ &RPPXQLVP RXU SURFH  
 D IHZ FRPPXQLWLHV LQ (XURSH PDNH WK  
 FKRVLQ 7KH FLUFXPVWDQFHV ZLOO GLV  
 : H DUH WKXV OHG EHIR ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~  
 (XURSH DQG ZLWKRXW ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~  
 FRXUVH WKH 5HYROXWLRQ ZLOO WDNH F  
 IHDWXUHV

&HUWDLQO\ LW ZRXOG EH YHU\ GHVLUD  
 WKDW H[SURSULDWLRQ VKRXOG EH JHQH  
 VKRXOG LQVSLUH ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ULVI  
 VLPSOLI\ WKH WDVN RI RXU FHQWXU\

%XW DOO WKH VLJQV OHDG XV WR EHOL  
 5HYROXWLRQ ZLOO HPEUDFH (XURSH ZH  
 FRQLQHQ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~  
 DQG RYHUWXUQV LWV \*RYHUQPHQW LW I  
 IROORZ LWV H[DPSON ZLWKLQ D ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~  
 SUREDEOH WKDW WKH 3HQ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~  
 EH ORQJ LQ IROORZLQJ VXLW %XW ZKHV  
 H[KLELW WKH VDPH FGDUDFWHULVWLFV L  
 ,W LV PRUH WKDQ SUREDEOH WKDW H[S  
 LQW ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ ~~WVW~~ DQG WKDW WKLW S

WKH JUHDW QDWLRQV RI (XURSH ZLOO LC  
WKH 5HYROXWLRQ ZLOO UH QEEH W DQ Q DLW  
LQ IGHUHQW FRXQWU WKH ) QHQGHK SHDVDQ\  
ILQDOO\ ULG WKHPVHOYHV RI WKH UHGR  
WR RYHUWKURZ UR\NWS WKDW LQ PLQG  
VHH WKH 5HYROXWLRQ GHYHO/RHVLXW DQ I  
GLVKHDUWHQH G LI KHUH DQG WKHU:KHLW  
ZRXOG WDNH DQ DYRZHGO\ VRFLDOLVW F  
UDWH DW WKH EHJLQQLEJH LW GRXHEW EXO  
UHDOLJLQJ LWV GUHDP RI D 8QLWHG (PSI  
-DFRELQ 5HSXEOLF OLNH JWDLDWIL RQ RI  
DFFRUGLQJ WR /RXLV %ODQF ZKLOH WKI  
DERYH DOO WKLQJV D IUHH &RPPXQH ZK  
QRW

7KHUH LV HYHU\ UHDVRQ WR EHOLHYH \  
SODFH \*HUPDQ\ ZLOO JR IXUWKHU WKDQ  
FHQWXU\ 5HYROXWLRQ LQ )UDQFH ZDV D  
WKH VHYHQWHHQWK DEROLVKLQJ DV LW  
DQG WKH ODQGHGRVULVQDORFH VWLOO  
\*HUPDQ\ JRHV IXUWKHU DQG GRHV JUHDV  
FDQ EH QR GRXEW WKDW WKH LGHDV ZKL  
ZLOO EH WKRVH RI ahdh ZKLOH WKH LGH  
5XVVLD ZLOO SUREDEO\ EH D FRPELQDWI  
: LWKRXXW DRZWDYFKULQJ WR WKHVH IRUH  
WKH\ PHULW ZH PD\ VDIHO\ FRQFOXGH V  
GLHUHQW FKDUDFW HUH HQW D KRSIHWKHQ  
DWWDLQH G LQ WKH VRFLDOLJDWLRQ RI Z  
: LOO LW WKHUH IBLVHV RPHFWLVDV\ VXJ  
LQ WKH YDQJXDUG RI WKH PRYHPHQW VK  
EHKLQG" 0XVW ZH ZDLW WLOO WKH &RPP  
FRXQWULHV" &OHDUO\ QRW (YHQ LI LW Z  
SRVVLEOH +LVWRU\ GRHV QRW ZDLW IRL  
%HVLGHV ZH GR QRW EHOLHYH WKDW L  
DFFRPSOLVKHG DW D VWURNH LQ WKH W  
GUHD, W LV KLJKO\ SUREDEOH WKDW WRIZRQ  
)UDQFHU LWRQV 0DUVHLOOHV /LOOHZHDH  
SURFODLP WKH &RPPXQH WKH RWKHUV Z



VPDOOHU WRZQV ZRXOG GR WKH VDPH 3  
DQG LQGXVWULDO FHQWUHV ZRXOG KDVV  
3PDVWHUV ` DQG IRUP WKHPVHOYHV LQW  
%XW PDQ\ FRXQWU\ SODFHV KDYH QRW  
ZLWK WKH UHYROXWLRQLJHG FRPPXQHV `  
H[SHFWDQW DWWLWXGH DQG ZRXOG JR  
8QGLVWXUEHG E\ YRULWKHRWVWKHFRSODV  
QRW EH KRVLLOH WR WKH UHYROXWLRQI  
VWDMRUIVDIWKH\ ZRXOG GHIHU WKH VHV  
H[SORLWHUV %XW ZLWK WKDW SUDFWLF  
DJUDULDQ XSULVLQJV ZLWQHVV WKH SD  
WKHPVHOYHV LQWR WKH WDVN RI FXOWL  
PRUWJDJHV ZRXOG EHFRPH VR PFK GHI  
\$V WR RWKHU FRXQWULHV UHYROXWLR  
UHYROXWLRQ XQGHU GLYHUVH DVSHFWV  
)HGHUDWLRQ HYHU\ZKHUH PRUH RU OHV  
SDUWLFXODU UXOH

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/HW XV QRZ UHWXUQ WR RXU FLW\ LQ UH  
SURLGHIVRIRGUVWKHPVHOYHV +RZ DUH W  
REWDLQHG LI WKH QDWLRQ DV D ZKROH  
TXHVWLRQ WDNH MRUOMHOGSTOJH RQHQRK W  
WDNH WKH FDSLWDO 3DWLWOFRQRUWKDW WY  
RI WRQV RI JUDLQ d```` KHDG RI R[HQ  
PRUH WKDQ b```` RI VKHHS EHVLGHV  
FLW\ GHYRXUV EHVLGHV PRUH WKDQ`b``  
HJJV DQG RWKHU SURGXFH LQ OLNH SUF  
,W LPSRUWV IORXU DQG JUDLQ IURP WK  
+XQJD,WDQ\SW DQG WKH ,QGLHV QWYD\W  
6SDHQHQ 5RPDQLD DQG 5XVVD DQG DV  
FRXQWU\ LQ WKH ZRUOG WKDW LW GRHV

1RZ OHW XV VHH KRZ 3DULV RU DQ\ RWF  
E\ KRPHJURZQ SURGXFH VXSSOLHV RI ZI  
VHQW LQ IURP WKH SURYLQFHV

7R WKRVH ZKR SXW WKHLU WUXVW LQ <sup>3</sup>[  
VLPSOH 7KH\ ZRXOG EHJLQ E\ HVWDEOL'  
\*RYHUQPHQW IXUQLVKHG ZLWK ~~VDIHO SARI~~  
DUPWKH JXLOORWLQH 7KLV \*RYHUQPHQ'  
SURGXFH FRQWDLQH G LQ )UDQFH ,W ZR;  
VXSS ~~DQG FWR~~ ~~RFDQ~~ ~~GDW~~ D SUHVFULEHG TXD  
IRRGIV ~~FX~~ ~~IV~~ ~~HQW~~ WR VXFK ~~DDS~~ ~~GD~~ ~~SH~~ ~~RLQ~~ ~~VXF~~  
VWDWLRQ WR EH WKHUH UHFHML ~~HFG~~ ~~DRQ~~ ~~DL~~  
LQ SDUWLFXODU ZDUHKRXVHV

1RZ ZH GHFODUH ZLWK WKH IXOOHVW FI  
VROXWLRQ LV XQGHVLUDEOH EXW WKDW  
SUDFWLFH ,W LV ZLOGO\ 8WRS LDQ

3HQ LQ KDQG RQH PD\ GUHDP ~~EXWF~~ ~~KLQ~~ ~~E~~  
ZLWK UHDOLW\ ~~L~~ ~~W~~ ~~K~~ ~~R~~ ~~F~~ ~~H~~ ~~Z~~ ~~D~~ ~~W~~ ~~S~~ ~~U~~ ~~R~~ ~~V~~ ~~H~~ ~~O~~ ~~L~~ ~~N~~ ~~O~~ ~~E~~  
WKHRULHV LW OHDYHV RXW RI DFFRXQW  
7KH DWWHPSW ZRXOG OHDG WR D ~~KO~~ ~~GY~~ ~~PH~~  
WKH YLOODJHV ULVLQJ DJDLQVW WKH WF  
FLW\ IRU LWV DUURJDQFH LQ DWWHPSWL  
FRXQWU\

: H KDYH DOUHDG\ KDG WRR PXFK RI -DI  
RWKHU ~~IR~~ ~~DL~~ ~~R~~ ~~D~~ ~~W~~ ~~UR~~ ~~Q~~ ZLOO PHHW WKH FD  
'XULQJ WKH JUHDW )UHQFK 5HYROX ~~W~~ ~~L~~ ~~R~~  
WRZQV DQG NLOOHG WKH 5HYROXWLRQ  
SURGXFWLRQ RI JUDLQ ~~GL~~ ~~Q~~ ~~D~~ ~~U~~ ~~D~~ ~~Q~~ ~~F~~ ~~H~~ ~~G~~ ~~L~~ ~~P~~ ~~U~~ ~~Q~~  
HYLGHQFH JRHV WR VKRZ WKDW LW KDG  
SRVVHV VLRQ RI WKH PDQRULDO ODQGV  
WKH SHDVDQWV ZRXOG QRW ~~SR~~ ~~Q~~ ~~W~~ ~~K~~ ~~Z~~ ~~H~~ ~~W~~ ~~Z~~  
WKHLU SURGXFH ZDLWLQJ IRU D ULVH LI  
PRVW ULJRURXV PHDVXUHV RI WKH 1DWL  
KHU H[HFXWLRQV IDLOHG WR EUHDN XS V  
FRUQ )RU LW LV D PDWWHU RI KLVWRU\  
GLG QRW VFUXSOH WR JXLOORWLQH WKR  
DQG SLWLOHVVO\ H[HFXWHG ~~W~~ ~~K~~ ~~R~~ ~~S~~ ~~O~~ ~~Z~~ ~~W~~ ~~K~~  
FRUQ ZDV QRW IRUWKFRPL ~~Q~~ ~~U~~ ~~H~~ ~~O~~ ~~Q~~ ~~G~~ ~~R~~ ~~V~~ ~~K~~ ~~H~~ ~~F~~

%XW ZKDIMUZHGV WR WKH KXVEDQGP DQ LI  
\$VVLJQDWV VFUDSV RI SDSHU SHRPHDNY  
SD\PHQW ZKLFK FRXOG QRW EH NHSW \$  
D SDLU RI ERRWV DQG WKH \$HQRW DQ [LY  
\HMUWRLO IRU D SLHFH RI SDSHU ZLWK Z  
\$V ORQJ DV ZRPHW@KHWSHDSHDOOHG D  
QRVLRVIRIHUHG WR WKH SHDVDQW SURGXFH  
FRXQWU\ ZLOO ZLWKKROG LWVHSURZG@MH  
WKH UHFDOFLWUDQW SHDVDQWV DUH JXI  
: H PXVMURWR WKH SHDVDQW LQ H[FKDQ  
PRQHEXW WKH PDQXIDFWXUHG DUWLFOH\  
+H ODFNV WKH SURSHU LPSOHPHQWV WR  
WKH LQFOHPHQFLHODRSW@GZHRDVKMR UH  
UXVKOLJKW RU WDOORZ GLS VSDGHV UI  
SUHVHQW FRQGLWLRQV WKH SHDVDQW L  
QRW IHHO WKH QHHG RI WKHP EXW EHFL  
WKRXVDQG XVHIXO WKLQJV DUH EH\RQG  
EX\ WKHP

/HW WKH WRZQ DSSO\ LWVHOI ZLWKRX\  
WKH SHDVDQW QHHGV LQVWHDG RI IDVK  
FLWL]HQV /HW WKH VHZLQJ PDFKLQHV R  
FRXQWU\ IRON ZRUNGD\ FORWKHV DQG  
HYHQLQJ GUHVHV IRU WKH (QJOLVK DQ  
PDJQDWHV† ZLYHV /HW WKH IDFWRULHV  
LPSOHPHQWV VSDGHV UDNHV DQG VXF  
VHQQ WKHP WR )UDQFH LQ H[FKDQJH IRI  
/HW WKH WRZQV VHQQ QR PRUH LQVSHF  
RU UDLQERZ FRORXUHG VFDUYHV WR FR  
SURGXFH WR WKLW SODFH RU WKDW EXV  
FRXQWU\IRON DQG ELG WKHP LQ EURWKH  
WDNH IURP RXU VWRUHV DQG VKRSV DQC  
7KHQ SURYLVLQRQV ZRXOG SRXU LQ RQ H'  
ZLWKKROG ZKDW KH QHHGHG IRU KLV RZ  
FLWLHVIRIWHW@KJLUVW WLPH W@DWKWRX  
WRZQVIRON ZHUKLLEUFRW@KIDG@VDQG QR  
: H VKDOO EH WROG SHUKDSV WKDW W  
WUDQVIRUPDWL:RQORI\HQGXMKDUM LV WUXF

WKHUH DUH RWKHU EUDQFKHV ZKLFK FR>  
WR IXUQLVK WKH SHDVDQW ZLWK FORWK  
LPSOHPHQWV IRU ZKLFK WKH WRZQV PDN  
SUHVHQW ~~MDYLPHV~~ :WDLORUV VKRHPDNHU\  
PDQ\ RWKHU WUDGHV DQG FUDJ ~~WHVFR~~ ~~OW~~  
PDQXIDFWXUH RI XVHIXO DQG QHFHVVDU  
PHUH OX[XULHV \$OO WKDW LV QHHGHG I  
WKRURXJKO\ FRQYLQFHG RI WKH QHFHVV  
FRPH WR ORRN XSRQ LW DV DQ DFW RI M  
QR ORQJHU DOORZ LWVHOI WR EH FKHDW  
WKH GUHDP RI D UHYROXWLRQ ZKLFK FR  
SURILWV RID ~~QGG~~ ~~MDYH~~ SURGXFWLRQ DQ  
QRZ

7KLV WKHQ LV RXU YLHZ RI WKH ZKRO  
ZLWK VFUD ~~SEH~~ ~~RW~~ ~~SHD~~ ~~SHD~~ ~~SV~~ LQVFULEH ~~GHX~~ ~~SE~~  
RIHU KLP LQ H[FKDQJH IRW ~~WKLW~~ ~~SV~~ ~~BR~~ ~~FK~~ ~~HH~~  
RI WKH VRLO VWDQGV LQ QHHG 7KHQ W  
WRZQV ,I WKLW LV QRW GRQH WKHUH ZL  
GHVSDLU ZLOO IROORZ LQ LWV WUDLQ

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\$OO WKH JUHDW WRZQV ZH KDYHD ~~QDL~~ ~~QK~~  
PHDW QRW RQO\ IURP WKH SURYLQFHV  
VHQQ 3DULV QRW RQO\ VSLFHV ILVK DQ  
TXDQWLWLHV RI FRUQ DQG PHDW

%XW ZKHQ WKH 5HYROXWLRQ FRPHV WK  
IRUHLJQ FRXQWULHV DV OLWWOH DV SRV  
ULFH DQG 6SDQLVK RU +XQJDULDQ ZLQH  
(XURSH LW LV QRW WKDW WKH FRXQWUL  
VXSHUDEXQGDFH RU WKDW VXFK D SUF  
GDQGHOLRQ LQ WKH PHDGRZV ,Q 5XVVLI  
KRXUV ~~DCG~~ \KDOI VWDUYHV IURP WKLW ~~RI~~

H[SRUW WKH JUDLQ ZLWK ZKLFK KIR SD\ W  
SROLFH DSSHUV LQ WKH 5XVVDQ YLOO  
DQG VHOOVVWVSHRUDQW DQG ODVW FR  
GXH WR WKH ODQGORUG XQOHVV WKH Y  
E\ VHOOLQJ WKH JUDLQ WURWIKHHUHVSRUW  
OLYHVWRFN DW D GLVDGYDQWDJH KH NF  
DQG VHOOV WKH UHVW 7KHQ LQ RUGHU  
PL[HV ELUFK EDUN DQG WDUHV ZLWK KLV  
JRRG \DQG IRU VL[ PRQWKV LI LW KDV E  
HDWLQJ ELVFXLWV PDGH RI KLV ZKHDW

%XW DV VRRQ DV WKH 5HYROXWLRQ FR  
HQRXJK IRU KLPVHOI DQG KLV FKLOGUHQ  
GR WKH VDPH WKH +LQG X OHW XV KRSH  
WKH IDUPHUV RI \$PHULFD ZLOO KDUGO\ I  
ZKLFK (XURSH ZLOO H[SHULHQFH 6R LW  
FRQWULEXWLRQV RI ZKHDW DQG PDL]H V

6LQFH DOO RXU PLGGOH FODVV FLYLOL  
LQIHULRU UDFHV DQG FRXQWULHV ZLWK  
5HYROXWLRQ ZLOO FRQIHU D ERRQ DW W  
3FLYLOL]DWLRQ ` DQG DOORZLQJ WKH VR

%XW WKLW JUHDW EHQHILW ZLOO PDQL  
GLPLQXWLRQ RI WKH IRRG VXSSOLHV SR  
(XURSH

,W LIV FLOW WR SUHGILFW WKO WRXUSURF  
KDQG WKH VODYH RI WKH VRLO ZLOO WD  
KLV ERZHG EDFN ,QVWHDG RI ZRUNLQV  
GRHV DW SUHVHQW KH ZLOO EH DW OLE  
FRXUVH ZRXOIGFMDYH WKH FUIHIDVLQJ WKH S  
DUWLFOHV R1JFUDQXPSALPHQW

%XW RQ WKH RWKHU KDQG WKHUH ZLC  
WKH SHDVDQW UHDOL]HV WKDW KH LV QF  
WRLO 1HZ WUDFWV RI ODQG ZLOO EH FO  
JRLQJ

31HYHU ZDV WKH WDEOR FLOWLYDWHC  
SHDVDQW KDG WDNHQ EDFN IURP WKH OI  
ORQJ ` OLFKHOW WHOOV XV VSHDNLQJ F

2I FRXUVH EHIRUH ORQJ LQWHQVLYH F  
,PSURYHG PDFKLFQDFDO PDQXUHV DQG DC  
EH VXSSOLHG E\ WKH &RPPXQH %XW HYF  
RXWVHW WKHUH ZIRXO @ JEL DX DDVXULDD BU  
HOVHZKHUH

,Q DQ\ FDVH LW ZRXOG EH ZLVHVRWR |  
FRQWULEXWLRQV IURP WKH SURRZQLFVHWK  
IDOODLQWRREH PDGH JRRG"

:K\ E\ VHWWLQJ WR ZRUN RXUVHOYHV  
IDUIHWFKHG SDQDFHDV ZKHQ WKH UHPHC  
7KHJ@DWZRZQV DV ZHOO DV WKH YLOOD.  
:H PXVW UHWXUQ WR ZKDW ELRORJ&DFD@  
WKH GLYLVLRLQKRIWDDNLRQJUXSWRILVWVDF  
IROORZHG WKURXJKRXW 1DWXUH

%HVLGHV SKLORVRSK\ DSDUW WKH IRU  
WKLW UHVXOW /HW 3DULV VHH WKDW DW  
VKRUW RI EUHDG DQG 3DULV ZLOO VHW  
/DQG ZLOO QRW EH ZDQWLQJ IRU LW L'  
HVSHFLWDD@WKH SDUNV DQG SOHDVXUH  
IRXQG 7KHVH WKRXVDQGV RI DFUHV RQC  
KXVEDQGPDQ WR VXUURXQG 3DULV ZLWK  
SURGXFWLYH WKDQ WKH VWHSSHV RI VR.  
WKH VXQ 1RU ZLOOROZKEDWUV&RXODGFMLKQ  
RI 3DULV WXUQ WKHLU DWWHQWLRQ ZKF  
OX[XULRXV IDGV DQG DPXVHPHQWV RI 5X  
DQG ZLYHV RI %HUOLQ ILQDQFLHUV"

:LWK DOO WKH PHFKDQLFDO LQYHQWLR  
LQWHOOLJHQFH DQG WHFKQLFDO VNLOO  
FRPSOLFDWHG PDFKLQHU\ ZLWK LQYHQV  
SUDFWLFDO ERWDQLVWV OLNH WKH PDUN  
SODQW WKDW WKH\ FRXOG XVH IRU PXOV  
ILQDQZDWKJ@H]IRUJ VSLULW RI WKH 3DUL  
HQJHJZLWK DOO WKHVH DW LWV FRPPDQG  
&RPPXQH RI 3DULV ZRHOHQVHWKYLQJYUQLR  
RI WKH \$UGHQQHV

6WHDP HOWKWKULFDW\RI WKH VXQ DQG  
ORQJ EH SUHVHVG LQWR VHUYLFH 7KH V

TXLFNO\ GR WKH URXJK ZRUN RI SUHSDU  
HQULFKHG ZLOO RQO\ QHHG WKH LQWHC  
PRUH WKDQ PDQ WR EH FORWQRIW BQWK  
RU IRXU WLPHV LQ WKH \HDU

7KXV OHDUQLQJ WKH DUW RI KRUWLFX  
H[SHULPHQWV BHWKRGV RQ VPDOO SI  
SXUSRVH Y\LQJ ZLWK HDFK RWKHU WR R  
H[HUFLVH ZLWKRXW H[KDXVWLRQ RU RYI  
RIWHQ IOD<sup>2</sup>PHQQ ZRPHLO<sup>1</sup>DQG FKLOGUHQ Z  
ODERXU RI WKH ILHOGV ZKHQ LW<sup>3</sup>XW QB\

D SOHDVXUH D IHVWLYDO D UHQHZDO R  
<sup>3</sup>7KHUH DUH QR EDUUHQ ODQGV WKWKD  
LV WKH ODVW ZRUG RI PRGHUQ DJULFXO'  
\RX EUHDG SURYLGHG WKDW \RX DVN DU  
\$ GLVWULFW WKRXJK LW ZHUH DV VPDC  
DQG WKH 6HLQH HW 2LVH DQG ZLWK VR  
SUDFWLFD<sup>1</sup>Q<sup>2</sup>W<sup>3</sup>XWR JURZ XSRQ LW DOO \  
PLJKW IDLO WR UHDFK LW

7KH FRPELQDWLRQ RI DJULFXO<sup>1</sup>W<sup>2</sup>XE<sup>3</sup>ED<sup>4</sup>Q<sup>5</sup>GC  
PHFKDQLF LQ WKH<sup>1</sup>W<sup>2</sup>LP<sup>3</sup>H<sup>4</sup>LV<sup>5</sup>Q<sup>6</sup>Z<sup>7</sup>GL<sup>8</sup>W<sup>9</sup>G<sup>10</sup>X<sup>11</sup>O<sup>12</sup>DU<sup>13</sup>FK  
LQH<sup>14</sup>YL<sup>15</sup>W<sup>16</sup>DEO<sup>17</sup>\ OHDG XV WR LI LW VWDUW<sup>18</sup>\  
/HW WKH 5HYROXWLD<sup>19</sup>GR<sup>20</sup>IO<sup>21</sup>PL<sup>22</sup>QH<sup>23</sup>W<sup>24</sup>W<sup>25</sup>Q<sup>26</sup>RD<sup>27</sup>M  
KDYH W<sup>28</sup>RI<sup>29</sup>H<sup>30</sup>W<sup>31</sup>WK<sup>32</sup> GDQJHU ZKLFK ZLOO<sup>33</sup>U<sup>34</sup>PH<sup>35</sup>M  
DQG KDOI PHDVXUHV 7KH GDQJHU LV ZK  
)UDQFH<sup>36</sup>O<sup>37</sup>\DXGDFH GH<sup>38</sup>O<sup>39</sup>\G<sup>40</sup>X<sup>41</sup>G<sup>42</sup>O<sup>43</sup>\FD<sup>44</sup>X<sup>45</sup>G<sup>46</sup>VE<sup>47</sup>PH<sup>48</sup>Q<sup>49</sup>  
WKRXJKW ILUVW DQG WKH EROG GHHG Z

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7KRVH ZKR KDYH FORVHO\ ZDWFKHG WKH  
ZRUNHUV PXVW KDYH QRWLFHG ~~WKKDHWKRC~~  
RI WKH<sup>2</sup> ~~DHCRSIOQ~~ LWLH FRQFOXVLRQ LV EHL  
IDFW WKD~~JM~~ ~~WRZQV~~ ~~OID~~UDQFH DQG LQ P  
ZRUNHUV DUH FRPLQJ JUDGXDOO\ WR WK  
QR VHQVH WKH SURSHUW\ RI WKR VH ZKR  
7KLV LGHD KDV HYROYHG QDWXUDOO\ L  
ZLOO HYHU FRQYLQFH WKHP DJDLQ WKDV  
WR KR XVHV

7KH KR XVH ZDV QRW ~~EXLZDW~~ ~~BUHWW~~ ~~RGZC~~  
IXUQLVKHG E\ LQQXPHUDEOH ZRUNHUV L  
WKH ZRUNVKRS WRLOLQJ IRU GHDU OLIF  
7KH PRQH\ VSHQW E\ WKH RZQHU ZDV Q  
DPDVVHG OLNH DOO RWKHU ULFKHV E\  
KDOI RI ZKDW ZDV WKHLU GXH

ORUHR~~YQG~~ LW LV KHUH WKDW WKH HQRI  
EHFRPHV PR~~W~~ ~~W~~ ~~K~~ ~~H~~ ~~J~~ ~~K~~ ~~R~~ ~~X~~ ~~L~~ ~~V~~ ~~H~~ ~~R~~ ~~Z~~ ~~H~~ ~~V~~ ~~L~~ ~~W~~ ~~V~~ ~~D~~ ~~F~~ ~~W~~ ~~X~~ ~~I~~  
WKH RZQHU FDQ PD~~N~~ ~~K~~ ~~R~~ ~~X~~ ~~S~~ ~~U~~ ~~R~~ ~~I~~ ~~L~~ ~~W~~ ~~U~~ ~~H~~ ~~R~~ ~~Z~~ ~~O~~ ~~'~~  
KR XVH LV EX<sup>2</sup> ~~W~~ ~~W~~ ~~Q~~ ~~L~~ ~~D~~ ~~W~~ ~~R~~ ~~Z~~ ~~Q~~ ~~D~~ ~~J~~ ~~J~~ ~~O~~ ~~R~~ ~~P~~ ~~H~~ ~~U~~  
KR XVHV SRVVHVVLQJ SDYHG VWUHHWV  
ZHOO OLJK~~W~~ ~~H~~ ~~G~~ ~~L~~ ~~O~~ ~~Q~~ ~~V~~ ~~D~~ ~~L~~ ~~W~~ ~~V~~ ~~L~~ ~~Q~~ ~~K~~ ~~D~~ ~~E~~ ~~L~~ ~~W~~ ~~D~~ ~~Q~~ ~~W~~  
FRQYHQLHQFHV XQNQRZQ LQ YLOODJHV  
RWKHU WRZQV DQG LW ~~F~~ ~~R~~ ~~O~~ ~~P~~ ~~D~~ ~~U~~ ~~F~~ ~~H~~ ~~Q~~ ~~W~~ ~~E~~ ~~H~~ ~~R~~  
WRZQ ZKLFK WKH ZRUN RI WZHQW\ RU W\   
KHDO~~W~~ ~~Q~~ ~~G~~ EHDXLIXO



\$ KRXVH LQ FHUWDLQ SDUWV RI 3DULV  
VWHUOLQJ QRW EHFDXVH WKRXVDQGV R  
H[SHQGHG RQ WKDW SDUWLFXODU KRXVH  
FHQWXULHV ZRUNPHQ DUWLVWV WKLQN  
FRQWULEXWHG WR PDNDH B D Q W U H Z K R F V L Q F V  
SROLWLFV DUW DQG VFLHQFH EHFDXVH  
OLWHUDWXUH WKH QDPHV RI LWV VWUHI  
DV ZHOO DV DW KRPH EHFDXVH LW LV W  
ZRUN RI ILIW\ JHQHUDWLRQV RI WKH ZKR  
:KR WKHQ FDQ DSSURSULDWH WR KLP\  
PHDQHVW EXLOGGLQW LQ R X X F R D P F L W W L Q J  
:KR WKHQ KDV WKH ULJKW WR VHOO WR  
FRPPRQ KHULWDJH"

2Q WKDW SRLQW DV ZH KDYH VDLG WK  
RI IUHH GZHOOLQJV VKRZH G LWV H[LVWH  
ZKHQ WKH FU\ ZDV IRU DQ DEDWHPHQW S  
E\ WKH ODQGORUGV ,W DSSHDUHG DJDL  
3DULV ZRUNPHQ H[SHFWHG WKH &RXQFLC  
WKH DEROLWLRQ RI UHQW \$QG ZKHQ WK  
ILUVW TXHVWLRQ ZLWK ZKLFK WKH SRRU  
:KHWKHU LQ WLPH RI UHYROXWLRQ RU I  
KRXVHG VRPHKRZ RU RWKHU KH PXVW K  
%XW KRZHYHU WXPEOH GRZQ DQG VTXD  
DOZD\ V D ODQGORUGUZKR B D Q L Q Y L W W H K B  
ODQGORUG FDIQDQV G I S Q I O L E P L W M R W K U R  
UDJV DQG FKDWWHOV LQWR WKH VWUHH\  
ZLOO GR WRPRUURZ" :KR FDQ VD\ WKDW  
DQG VHW WKH SROLFH SDFN XSRQ WKH W  
+DYH ZH QRW VHHQ WKH FRPPXQH RI 3DL  
XS WR WKH ILUVW SWRH \$ S U L D W R O Q H Q W K D G  
ZDV LQ D VWDWH RI FKDRV DQG LQGXVW  
ZKR KDG WDNHQ DUPV WR GHIHQG WKH L  
QRWKLQJ WR<sup>2</sup> I G H S H Q G G K X S F X I O P L O \ D O O R Z D C  
SHQFH D GD\  
1RZ WKH ZRUNHU PXVW EH PDGH WR VH  
WR D ODQGORUG RU RZQHU KH L J D Q R J W W  
DXWKR+UL W X V W X Q G H U V W D Q G W K D W W K H

SULQFLSOH VDQFWLRQHG VR WR VSHDN  
IUHH LV D ULJKW SURFODLPHG DORXG E\  
\$UH ZH JRLQJ WR ZDLW WLOO WKLW PH  
KRQHVW ~~PHDOVH~~ RI MXVWLFH LV WDNHQ X  
DPRQJ WKH PLGGOH FODVV HOHPHQWV F  
ZLOO EH FRPSRVHG" ,I LW ZHUH VR ~~2WKLW~~  
WKH UHWXUQ RI UHDFWLRQ LQ IDFW  
7KLV LV ~~ZHXVLQJ~~ XQLRWR ~~R R~~ VHQ ~~B~~ XE ~~WZGDUK~~  
DXWKRULW\ ~~DDQG~~ UH ~~HYD~~ ~~WXLQJ~~ SHRSOH DP  
HDUQHVV UHYROXWLRQLVWV ZLOO ZRUN  
DEROLWLRQ RI UHQW WKH H[SURSULDWL  
IDFW 7KH\ ZLOO SUHSDUH WKH JURXQG  
GLUHFWLRQ DQG ZKHQ WKH IUXLW RI W  
WR H[SURSULDWH WKH KR XVHV ZLWKRXW  
FHUWDLQO\ EH ~~W~~ ~~W~~ ~~X~~ ~~R~~ ~~W~~ ~~L~~ ~~H~~ ~~Q~~ ~~V~~ ~~D~~ ~~K~~ ~~R~~ ~~X~~ ~~U~~ ~~V~~ ~~Z~~ ~~S~~ ~~D~~ ~~\~~ ~~L~~ ~~C~~  
ODQGORUGV DQG ILQGLQJ ILUVW WKH Q  
2Q WKH GD\ WKDW WKH H[SURSULDWL ~~R~~ ~~K~~  
H[SORLWHG ZRUNHUV ZLOO KDYH UHDOL]  
ZLOO QR ORQJHU KDYH WR EHDU WKH \RI  
KDV EHHQ RSHQO\ SURFODLPHG WKDW W  
WKHDWULFDO PDNH EHOLHYH OLNH VR P

, ,

,I WKH LGHD RI H[SURSULDWLRQ EH DGR;  
HIIHFW LQ VSLWH RI DOO WKH <sup>3</sup>LQVXUPRX  
PHQDFHG

2I FRXUVH WKH JRRG IRON LQIQ ~~FIZD~~ ~~XQD~~  
RI ~~W~~ ~~K~~ ~~W~~ ~~H~~ ~~O~~ ~~L~~ ~~G~~ ~~E~~ ~~Z~~ ~~H~~ ~~O~~ ~~O~~ EH VXUH WR EXV\ WKH  
REVWDFOHV 7KH\ ZLOO WDON RI JLYLQJ  
SUHSDULQJ VWDWLWLVFV ~~D~~ ~~Q~~ ~~G~~ ~~V~~ ~~K~~ ~~U~~ ~~D~~ ~~Z~~ ~~Z~~ ~~R~~ ~~X~~  
FDSDEOH RI GUDZLQJ XS UHSRUWV ORQJ  
SHRSOH ZKR DIWHU ZDLWLQJ DQG VWDI

QRWKLQJ FRPHIRFLDOOUMKHVFRKHV ZRX  
WKH 5HYROXWLRQ DQG DEDQGRQ WKH IL  
EXUHXDFUDF\ ZRXOG HQG E\ PDNLQJ H[S  
+HUH LQGHHG LV D URFN ZKLFK PLJKV  
SHRSOH WXUQ D GHDIJXFDLQWR WKHHGVSRF  
UHDOLJH WKDW QHZ OLIH QHHGV QHZ FR  
WKHPVHOYHV WKHQ HHSFWRHSGU ZDWKRDLVFXD  
3%XW KRZ" +RZ FDQ LW EHH GRQEO' WRX I  
TXHVWLRQ EXW ZLHWKDDYHUHQRHUQVWQRQ  
SODQV RI H[SURSULDWLRQHLLQQRKHELHURUPH  
WKDW DQ\ PDQ RU JURXS RI PHQ FRXOG  
E\ WKH UHDOLW\ ZKHQ LW FRPHV ODQ ZL  
DFFRPSOLVK WKHP EHWWHU DQG E\ VLPS  
EHIRUHKDQG 7KXV ZH VKDOO PHUHO\ LQ  
H[SURSULDWLRQFRPSOLVKHG ZLWKRXW  
\*RYHUQPHHGR QRW SURSRVH WR JR RXW  
GHFODUH WKDW WKHHWFRQQJLQWR RSRMOLYI  
ZH DUH QRW WKH XSKROGHUVJROD]QMSDK  
RQO\ FRQFHUQHG WR GHPRFRXVODHFWHVK  
SRSXODU LQFRVLDQVYHWDHOGGE\ DQ\ RWKH  
,W VHHPV YHU\ OLNHO\ WKDW DV VRRQ  
RI YROXQWHHUV ZLOO VSULQJ XS LQ HYF  
DQG XQGHUWDNH WR LQTXLUH LQWR WKH  
HPSW\ DQG RI WKRVH ZKLFK DUH RYHUFL  
WKH KRXXHV ZKLFK DUH WRR VSDFLRXV I  
XVHG WR KRXXVH WKRVH ZKR DUH VWLIOH  
WKHVH YROXQWHHUV ZRXOG KDYH GUDZC  
GLVWULFW RI DOO WKH IODWV WHQHPHC  
WKH URRPV DQG VXLWHV RI URRPOKHHOG  
IRHWLG GHQV DQG KRPHV RI OX[XU\  
)UHHO\ FRPPXQLFDWLQJKZLVWKYRDKQVRM  
WKHLU VWDWLWVLFV FRPSOHWH )DOVH  
URRPV DLQEVRIEXW WUXH DQG H[DFW VWD  
LQGLYLGXDO DQG PRXQW XS IURP WKH V  
7KHQ ZLWKRXW ZVLOHLDYHRWDRXRFHLW  
DQG ILQG WKHLU FRPUDGHV ZKR ZHUH O  
DQG ZLOO VD\ WR WKHP VLPSO\ 3,W LV [

DQG QR PLVWDNH DERXW LW &RPH WR V  
QHLJKERXUKRRG ZLOO EH WKHUH ZH DU  
KRXVHV ,I \RX DUH WLUHG RI \RXU VOXP  
IODWV RI ILYH URRPV WKDW DUH WR EH  
PRYHG LQ \RX QHYDLOKWHVSHR SOH DUH XS  
ZRXOG YHQWXUH WR HYLFW \RX ZLOO KD  
3% XW HYHU\ RQH ZLOO ZDQW D ILQH KR  
1R \RX DUH TXLWH PLVWDNH DQ W W E O DQ  
PRRQ 2Q WKHYFRQWMDPH ZH KDYH VHHQ  
ZURQJ ZH KDYH EHHQ VWUXFN E\ WKH JR  
DQLPDWHV WKH PDVVHV +DYH ZH HYHU I  
+DYH ZH HYHU VHHQ WKH SHRSOH RI 3DU  
ZDLWLQJ IRU WKHLU UDWLRQV RI EUHDG  
GXULQJ WKH WHUHGHOH KHSUWRH QFIB DC  
SUHYDLOHG DPRQJ WKHP LQ ahga ZDV FR  
WKH IRUHLJQ 3UHVV FRUUVSRQGHQWV  
ZHOO WKDW WKH ODVW FRPHUV ZRXOG K  
: H GR QRW GHQ\ WKDW WKHUH DUH SOF  
LQGLYLGHXDW TXLWH DZDUH RI LW %XW  
UHYLYH DQG QRXULVK WKHVH LQVWLQFW  
KRXVLQJ RI WKH SHRSOH WR DQ\ ERDUG  
PHUFLHVFRIDILVP LQ DQ\ VKDSH RU IRUP  
SDVLRQV VSULQJ XS DQG LW EHFRPHV  
SHUVRQ RQ WKH ERDUG 7KH OHDVW LQH  
UHFULPLQDWLRQV ,I WKH VPDOOHVW DG  
KXH DQG FDDQ QDWGWRXW UHDVRQ  
%XW LI WKH SHRSOH WKH FEVHVVHVRV  
XQGHUWDNH WR PRYH WKH LQKDELWDQW  
GZHOOLQJV RI WKH PLGGOH FODVVHV W  
LQHTXDOLWLHV ZLOO E UHHOD VLDX D S SHHGO  
JRRG LQVWLQFWRQRI DWKH FODVVHWHVRUW  
LQ WLPHV R2IE XMYR Q X MUL KO V VXFK DQ DS  
KHURLVP WKH VHOI GHYRWLRQ RI WKH V  
WKXV LW ZLOO EH LQ WKH FRPLQJ 5HYRC  
%XW ZKHQ DOO LV VDLG DQG GRQH VF  
LQMXVWLFHV XQGRXEWGGO\ ZLOO UHPD  
ZKRP QR JUHDW FULVLV FDQ OLIW RXW R

DUH VXQN 7KH TXHLVWQLRQ ZKRIZVHYHU WKH  
QR EXW UDWKHU KRZ WR OLPLW WKH QX  
1RZ DOO KLOVW WKH H[SHULHQFH RI WKH  
SV\FKRORJLWH LQ VKRZLQJ WKDW WKH E[  
GHFLVLRQ WR WKRVH ZKRP, WLVFRQFHUOC  
FRQVLGHU DQG DOORZ IRU WKH KXQGUH(  
EH RYHUORRNHGILQLDQ\PHGLWVURLIEXWLR

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ORUHRYMULV E\ QR PHDQV QHFHVVDU\ WF  
HTXDO UHGLVWULEXWLRQ RI DOO WKH G;  
LQFRQYHQLHQFHV DW ILUVW EXW PDWW  
KDV DGRSWG H[SURSULDWLRQ  
:KHQ WKH PDVRQV DQG FDUSHQWHUV  
EXLOGLQJ NQRZ WKDW WKHLU GDLO\ EU  
QRWKLQJ EHWWHU WKDQ WR ZRUN DMHWI  
DGDSW WKH ILQH KRXXHV ZKLFKIDREIVRHU  
IRU JLYLQJ VKHOWHU WR VHYHUDO IDPLC  
VSUXQJ XS LQILQLWHO\ KHDOWKLHU DQ(  
WRGDQG WR WKRVH ZKR DUH QRW \HW FF  
&RPPXQH ZLOO EH DEOH WR VD\ <sup>3</sup>3DWLH  
WKDQ DQ\ WKH FDSLWDOLVWV EXLOW IRL  
RXU HQIUDQFKLHMZLQVWEHORQJ WR WKRV  
WKHP 7KH DQDUFKLWV &RPPXQH GRHV Q  
7KHVH PRQXPHQWV HUHFHWG WR LWV FL  
ZLOO VHUYH DV PRGHV WR DOO KXPDQL  
,I WKH SHRSOH RI WKH 5HYROXWLRQ H[  
ORGJMKJWFRPPXQDOL]LQJ RI KRXXHV DQ  
GHFHQW<sup>2</sup>WZHOOWKJ 5HYROXWLRQ ZLOO P  
FKDUDFWHU IURP WKH ILUVW DQG VWDU  
PHDQV HDV\ WR WXUQ LW ,W ZLOO KDYH

)RU WKH H[SURSULDWLRQ RI GZHOOLQJ  
UHYROXWLRQ 2Q WKH PDQQHU RI LWV D  
DOO WKDW IROORZV (LWKHU ZH VKDOO \  
DQDUFKLVW FRPPXQLVW RU ZH VKDOO U  
LQGLYLGLXVW

,W LV HDV\ WR VHH WKH RPHUWLXVW  
SUDFWLFDO ZLW WKH LFWKZHU DUH VXUH WF  
TXHVWLRQ RI PDLQWDLQLQJ LQLTXLW\ D\  
SURWHVW 3LQ WKH QDPH RI MXVWLFH ' 3  
H[FODLP 3WKDW WKH SHRSOH RI 3DULV \  
KRXVHV ZKLOH WKH SHDVDQWV LQ WKH  
OLYH LQ" ' %XW GR QRW OHW XV PDNH D  
IRUHW E\ D ODSVH RI PHPRU\ WR ZKLFK \  
ZKLFK WKH\ WKHPVHOYHV DUJH W DFK DWO\ L  
FLW\ WKHZZRUKN KILV ZLIH DRFG W KIVOLGQ IDQQ  
ZKLOH IURP KLV ZLQGRZV KSD O B F M J W K H W U K  
ZKROH JHQHUDWLRQV SHULVK LQ FURZGI  
DQG WKDW WR UGHUVV WKLW LQMXVWLF  
'R QRW OHW WKHVH GLVLQJH Q X R Q R Z S W R  
LQHTXDOLW\ ZKLFK PD\ H[LVW EHWZHHQ  
WKH 5HYROXWLRQ ZLOO EH WUDQVLWRU\  
GD\ WR GD\ IRU WKH YLOODJH ZLOO QRV  
WKH SHDVDQW KDV FHDVHG WR EHWKHP  
WKH PRQH DOHQW WKH 6WDWH ,Q RUGHU W  
WUDQVLWRUV KDOO ZHOVW D\ RXU KDQG IL  
ZURQJ"

7KH VR FDOOHG SUDFWLFDO REMHFWLD  
ELGGHQ WR FRQVLGHU WKH KDUG FDVH F  
SULYDWLRQ KDV FRQWUJYHIGQW R J K X W B K  
\$QG ZH DUH JRLQJ WR GHSULYH KLP RI K  
LQWR WKH VWUHHW &HUWDLQJH\ HQRRW JKI  
IDPLQ\ DOO PHDQV OHW KLP VWD\ WKHUI  
WRR RXU 3ER\V' ZEQD\ QRW\ KZLQOCH O HKQ B  
LI QHHG EH %XW VXSSRVH KH OHWV ORC  
KRXVH WKHQ WKH SHRSOH ZLOO PDNH W  
KLV IRUPHU ODQGORUG DQ\ PRUH UHQW  
PRUH GXQV DQG FROOHFWRUV 6RFLDOL\

2U DJDLQ VXSSRVH WKDW WKH ODQGOI  
DQG VRPH SRRU ZRPDQ OLYHV QHDU E\ Z  
FDVH WKH SHRSOH ZR~~XO~~GV~~VRPH~~ Z~~OH~~W~~HU~~D~~U~~  
URRPV FRXOG QRW EH FRQYHUWHG LQWR  
KHU ILYH FR~~XO~~G~~U~~Q~~W~~ WKDW EH PRUH MX\  
PRWKHU DQG KHU ILYH OLWWOH RQH~~W~~~~IX~~  
OLGDV VDW DW KLV HDVH LQ DQ HP~~S~~~~W~~~~R~~~~X~~  
ZRXOG SUREDEO\ KDVWHQ WR GR LW RI  
WR EH IUHHG IURP KDOI KHU ELJ XQZLH  
RI VHUYDQWV WR NHHS LW LQ RUGHU

<sup>3</sup>6R \RX DUH JRLQJ WR WXUQ HYHU\WKL  
ODZ DQG<sup>3</sup> R~~K~~~~I~~~~G~~~~H~~~~U~~ ZLOO EH QR HQG WR R~~X~~~~O~~  
LW QRW EH EHWWHU WR VWDUW IUHVK E\  
UHGLVWULEXWLQJ WKH KRXVHV E\ ORW"  
SHUVXDGHG WKDW LI QR \*RYHUQ~~I~~~~P~~~~D~~~~Q~~~~W~~ W~~C~~  
DUH HQWUXVWHG WR WKHVH IUHH JURXS  
ZRUN WKH HYLFWLRQV DQG UHPRYDOV Z  
WDNH SODFH LQ RQH \HDU XQGHU WKH S  
ODQGORUGV

,Q WKH ILUVW SOD~~F~~~~H~~ W~~R~~~~Z~~~~H~~~~U~~~~H~~~~D~~~~D~~~~O~~~~P~~~~H~~~~R~~~~V~~~~Q~~ E  
DQG IODWV WR ORGJH DOO WKH LQKDELV  
VXLWHV RI ILQH DSDUWPHQWV PDQ\ ZRU  
WKH\ FRXOG 2QH FRXOG QRW <sup>3</sup>NHHSV~~W~~~~S~~  
VHUYDQWV 7KHLU RFFXSDQWV ZRXOG VF  
OX[XULRXV GZHOOLQJV 7KH ILQH ODGLH  
DGDSWHG WR VHOI KHOS LQ WKH NLWFK  
7KHUH ZRXOG EH QR QHHG WR FRQG~~X~~~~S~~  
RU LQVWDOO /~~D~~~~J~~~~S~~~~D~~~~D~~~~F~~~~L~~~~H~~~~Q~~~~E~~~~L~~~~W~~~~K~~~~H~~~~I~~ KHOS RI  
ZRXOG VKDNH GRZQ DPLFDEO\ LQWR WK  
SRVVLEOH IULFWLRQ DQG GLVWXUEDQFH  
FRPPXQH VUHGLVWULEXWLQJ ILHOGV DQ  
VR OLWWOH WKDW RQH FDQ RQO\ SUDLVI  
PHWKRGV WKH\ HPSOR\ " )HZHU ILHOGV F  
WKH 5XVVLDQ &RPPXQH WKDQ ZKHU~~B~~~~Q~~~~S~~  
IRUHYHU FDUU\LQJ LWV T~~S~~~~O~~~~C~~~~U~~~~D~~~~I~~~~O~~~~N~~ Z~~Q~~~~W~~  
WKH LQKDELWDQWV RI D JUHDW (XURSH  
FDSDEO~~J~~~~H~~~~R~~~~U~~~~J~~~~R~~~~W~~LRQ WKDQ 5XVVLDQ RU +I

ORUHRZHUPXVW QRW EOLQN DW WKH IDI  
FHUWDLQ GLVWXUEDQFH WR HYHU\GD\ OI  
FOLPE RXW RI WKH ROG JURRYHV WR EH  
WKH GLVKHV RQ WKHLU GLQQHU WDEOHV  
\*RYHUQPHQWV FDQ FKDQJH ZLWKRXW  
WKH FULPHV RI VRFLHW\ WRZDUGV WKRV  
DUH QRW WR EH UHGUHVHVG E\ DQ\ VXF  
8QGRXEW HGO\ WKHUH ZLOO EH D GLVW  
ORVV LW PXVW EH PLQLPLJHRSRQGLDQBL  
VWUHVV RQLWKZVOPDILP E\ DGGUHVVLQJ  
SDUWLHV DQG QRW WR ERDUGV DQG FRI  
UHGXFLQJ WKH VXP RI LQFRQYHQLHQFHV  
7KH SHRSOH FRPPLW EOXQGHU RQ EOX  
EDOORW VRPH KDUHEUDLQHG FDQGLGDW  
WKHP DQG WDNHV XSRQ KLPVHQIDWRJIN  
ZKHQ WKH\ WDNH XSJQQMJKHZKDWZKHW  
WKHP GLWKFWR LW EHWWHU WKDQ DO,  
QRW WKH 3DULV &RPPXQH DQ LQVWDQFH  
DQG KDYH ZH QRW FRQVWDQW HYLGHQFH



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:KHQ WKH KRXVHV KDYH EHFRPH WKH FR  
ZKHQ HDFK PDQ KDV KLV GDLO\ VXSSO\ F  
WR EH WDNHQ 7KH TXHVWLRQ RI FORWK  
QH[W DQG DJDLQ WKH RQO\ SRVVLEOH V  
QDPH RI WKH SHRSOH RI DOO WKH VKRS  
RU VWRUHG DQG WR WKURZ RSHQ WKH C  
QHHGV 7KH FRPPXQDO\ WKH WLLRQ\ WR IRF QDV  
QHHGV IURP WKH FRPPXQDO VWRUHV RU  
DQG RX<sup>2</sup>WVLD\ WQHUV VVDU\ FRUROODU\ RI W  
DQG IRRG

2EYLRXVO\ ZH VKDOO QRW QHHG IRU WI  
WR SXW DOO WKH JDUPHQWV LQ D KHDS  
HTXDO ZLW DQG LQJHQXLWV KLP ZKR<sup>2</sup> QDV  
LI KH KDYH WHQ FRDWV LW LV KLJKO\ LP  
KLP RI WKHP IRU PRVW IRON ZRXOG SUH  
JUDFHG WKH VKRXOGH RLVRIDQRPWKBUWHEZ  
JDUPHQWV DQG WR VSDUH ZLWKRXW KD  
, I ZH ZHUH WR WDNH DQ LQYHQWRU\ F  
DFFXPXODWHG LQ WKH VKRS\ R DQG ZWRU  
SUREDEO\ WKH WVLQ% RDUGLMDX[ DQG ODUV  
WR HQDEOH WKH FRPPXQDO\ WWR WR DOO W  
DQG LI DOO ZHUH QRW VXLWHG DW RQFH  
JRRG WKHVH VKNORZ RIRZJVDLSLGO\ RXU  
GUHVVPDNLQJ HVWDEOLVKPHQWV ZRUN C  
PDFKLQHU\ VSHFLDOO\ DGD\$WMEQIU SUI  
<sup>3</sup>%XW HYHU\RQH ZLOO ZDQW D VDEOH O  
RXU DGYHUVLHV

)UDQNH\ GR QRW EHOLHYH LW (YHU\ ZR  
GRHV HYHU\ PDQ GUHDP RI VDEH\ QULW

ZRPDQ WR FKRRVH KHU JRZQ ZH VKRXOC  
SUDFWLFDQ JDUPHQW WR DOO WKH IDQW  
DIIHFWV

7DVWHV FkdQJH ZLWK WKH WLPHV DQG  
5HYROXWLRQ ZLOO FHUW ~~BRQDH~~ ~~PDNH~~ ~~ICIL~~  
KDYH WKHLU KRXUV RI FRZDUGLFH EXW  
WKH VRFLHW\ RI WRGD\ FXWV D YHU\ SRF  
SHUVRQDO LQWHUHVWV DQG ~~IMHFRQVGDLD~~  
FULVHV FRPH ,W KDV LWV PRPHQWV RI J  
JHQHURXV QDWXUH ZLOO JDLQ WKH SRZF  
6HOI GHYRWLRQ ZLOO VSULQJ XS DQG Q  
HJRWLWV ZLOO EH DVKDPHG RI KDQJLQ  
WKHPVHOYHV WR DGPLUH LI QRW WR LP

7KH JUHDW 5HYROXWLRQ RI agic DERXQ  
DOZD\ GXULQJ VXFK ~~WEDPH~~ ~~QBRWXS~~ ~~SDOLWR~~  
LQGLY ~~LVKXDO~~ WKH VSULQJ WLGH RI HQWK  
: H GR QRW ZLVK WR H[DJJHUDWH WKH :  
LV LW XSRQ WKHP WKDW ZH ZR ~~%XG~~ ~~IRK~~ ~~D~~  
DVNLQJ WRR PFK LI ZH H[SHFW WKHLU I  
GLLFXOW ~~PHFDQV~~ WR KRSH WKDW RXU G  
LQVSLUHG E\ VXFK H[DOWHG HQWKXVLDV  
ILUVW DQG WKDW LV DOO ZH QHHG

,W LV MXVW WR ZDVK WKH HDUWK FOHD  
DFFXPXODWHG E\ FHQWXULHV RI VODYHU  
VRFLHW\ ZLOO KDYH QHHG RI WKLV ZDYH  
ZLWKRXW DSSHDOLQJ WR WKH VSLULW R  
HOLPLQDWHG RSSUHVVLRQ DQG WKXV FI  
IHHOLQJV RI VROLGULW\

%HVLGHV VKRXOG WKH FKDUDFWHU RI  
VNHWFKHG KHUH WKH IUHH LQLWLDWLYF  
RI DFWLRQ LQ ~~WRKZDWR~~ ~~RLQWK~~ ~~WKH~~ ~~RWLWV~~  
HYHU\ VWUHHW DQG TXDU ~~WHUWKRI~~ ~~XQB~~ ~~MU~~  
PDNH LQYHQWRULHV RI DOO WKDW WKH I  
DSSUR[LPDWHO\ ZKDW ZHUH WKH UHVRXL  
OLNHO\ WKDW LQ WKH PDWWHU RI FORWI  
SULQFLSOH DV LQ ~~WKW~~ ~~KPDW~~ ~~LV~~ ~~WKRI~~ ~~IV~~ ~~SDH~~ ~~UO~~

IUHHO\ IURP WKH FRPPRQ VWRUH HYHU\V  
DEXQGDQFH DQG GROH RXW ZKDWHYHU  
1RW EHLQJHUE OVRWHRK PDQ D VDEOH O  
ZRPDQ D YHOYHW JRZQ VRFLHW\ ZRXOG  
VXSHUIOXR XV DQGWKHSQRYFWLVDODOO\ D  
YHOYHW DPRQJ WKH VXSHUIOXLWLHV RI  
LV D OX[XU\ WRGD\ PD\ QRW EHFRLHOFRW  
QHFHVVDU\ FORWKLQJ ZRXOG EH JXDUDG  
FLWLW ZRXOG EH OHIW WR SULDYDWH DFW  
WKR VH WKLQJV SURYLVLQRQDOO\ FRQVLC  
OHVV UREXVW VXFV VSHFLDO DUWLFOHV  
FRQVXPSWLRQ RI RUGLQDU\ FLWL]HQV  
3%XW 'LWJPD\ EWKLU PHDQV JUH\ XQLII  
HYHU\WKLQJ EHDXLIXO LQ OLIH DQG DU  
3&HUWDLQO\ Q\$G' ZHWU@SOEDVLQJ RXU  
DOUHDG\ H[LVWV ZH DUH JRLQJ WR VKR:  
WKH PRVW DUWLVLWLF WDVWHV RI LWV FI  
IRUWXQH RI PLOOLRQDLUH

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, I D VR FL HW \ RU D WHUULWRU \ ZHUH WF  
LWV LQKDELWDQWV DQG ZH VKDOO VHH  
OLIH FDQ EH VR H[WHQGHHG DV WR LQFOX  
WDNH SRVVHVLRQ RI ZKDW LV DEVROXW  
ODQG PDFEORULHV PHDVWDSLWDDQV  
SULYDWH RZQHUV ZRXOG EH H[SURSULDV  
7KH JUHDW KDUJPHBRQW HFLZMXKDYH DOU  
PHQWLRQHG LV QRW RQOJHWKDDU HFDRSLWH  
HDFK LQG XVWULDO DQG FRPPHUFDO HQ  
ZLWKRXW ZRUNLQJ EXW WKDW DOO SUR  
QRW FDUULHG RQ ZLWK D YLHZ WR VHF  
ZK \ LW PXVW EH FRQGHPQH

, W LV DEVROXWHO \ LPSRVVLEOH WKDW  
RQ LQ WKH LQWHUWLWHLWDROXOG EH WR  
EH \ RQG KLV SURYLQFH DQDOROKLOLZLW  
WR EH ZKDSUKHYDWH PDQXIDFWXUHU VHH  
&DSLWDDQVVRURQ EDVHG RQ WKH SHUV  
HPSOR \ HU RKKDD EIRYHUQ WR VRFLHW \ DOO  
KDV LQFUHDVHG WKH SURZKXIFMDSYHWIDRQFV  
UHYROXHWLVRQGHILQ LQG XVWU \ E \ VWHDP E  
FKHPLVWU \ DQDQDQFEKLRQKHU LQYHQDVR  
ZRUNHG LQ KLV RZQ LQWHUHVW WRDOGFU  
JUHDW PHDVXUH KH KDXW XFRFDHGMHGLERV  
ZRXOG EH XQUHDVRQDEOH )RU H[DPSON  
VXSHULRU \ LHOG RI ODERXU LQ WKH LQW

DVN SKLODQWKURS\ DQG FKDULW\ RI KLF  
EDVHG RQ FKDULW\

,W QRZ UHPDLQMLURW VWRLHWHQG WKKI  
LV OLPLWHG WR FHUWDLQ LQG XVWULHV  
HYLGHQW WKDW WR XWLOLJH WRKIDW KWRKJ  
ZHOO EHLQJ WR DOO 6RFLHW\ PXVW LW\  
SURGXFWLRQ

(FRQRPLVWV DV LV WKHLU ZRQW ZLOC  
ZHOO EHLQJ RI D FHUWDLQ FDWHJRU\ RI  
VSHFLDO EUDQFKHV RI LQG XVWU\ ZKLFK  
V\WHP ,W LV DOZD\W WKLV PLQRULW\ W  
HYHQ WKLV ZHOO EHLQJ ZKLFK LW WKKH  
7RPRUURD\EH QHJOLJHQFH LPSURYLGHQ  
HPSOR\HUV ZLOO GHSULYH WKHVH SULY  
SD\IRU WKH SHULRG RI FRPIRUW WKH\ K  
SRYHUW\ RU GHVWLWXWLRQ <sup>2</sup>WRKZHPDQ\WLL  
VXJEWZLWKRXW PHQWLRQLQJ DOO VRUW\  
VHHQ GHFOLQH RU FRPH WR D VWDQGVW  
FRQVHTXHGFH RI QDWXUDO GLVSHODFW\PH  
FRPSHWLWLRQ DPRQJVV WKH FDSLWDOL\  
PHFKDQLFDO LQG XVWULHV KDG WR SDVV  
WKURXJK LQ ahhf ZH KDUGO\ QHHG PHQ\  
WKHLU SHULRGV RI VWDQGVWLOO

:KDW WRR VKDOO ZH VDI\ WR WKH SULI  
EHLQJ RI FHUWDLQ FDWHJRULHWRLVZSDIN  
UXLQ RI DJULFXOWXUH WKH VKDPHOHV  
WKH PDVVHV ,Q FRPSDULVRQ ZLWK WKH  
FHUWDLQ FRPIRUW KRZ PDQ\ PLOOLRQV  
PRXWK ZLWKRXW D VHFXUH ZDJH UH DG\  
PDQ\ SHDVDQWV ZRUN IRXUWHHQ KRXUV  
GHSRSXODWHVHMSIOHLEVRXQWKUH FRORQLHV  
LQG XVWULHV DUH EXW OLWWOH GHYHOR  
ZRUNPHQ WR UHPDLQ ZLWKRXW WHFKQLF  
LQ WKHLU RZQ WUDGH

7KLV LV QRW PHUHQ\HDFRVLGMOHWBDSLWLI  
RUGHU ZHOO WR UHPXQHUDWH FHUWDLQ  
WKH EHDVVV RI EXUGHQXRVW RGLVHWUW\G

VPDOO WUDGHV PXVW DJJORP JHUB WMLHQ  
PDQXIDFWXUH D WKRXVDQG OLWWOH WKI  
JRRGV RI WKH JUHDWHU LQG XVWULHV ZL  
7KDW EDG FORWK PD\ EH VROG WR LOO S  
WDLORUV ZKR DUH VDWLVLHG ZLWK D V  
EDFNZDUG VWDWH D H M W H [ S Q R R L W G H G U E W K D I  
V\ VWHP ZRUNHUV LQ D IHZ SULLYLOHJHG  
FRPIRUWV RI OLIH

7KH HYLO RI WKH SUHVHQW V\ VWHP LV  
SURGXFWLRQ JRHV WR WKH FDSLWDOLVW  
QDUURZLQJ WKH 6RFLDOLVW FRQFHSWR  
V\ VWHP WKH VXUSOXV YDOXH LWVHOI L\  
HYLO Q LWKH SRVVLELOLW\ RI LQ V W H S Q X R  
VXUSOXV QRW FRQVXPHG W K D W F K V H Q S I O  
H[LVW PHDQV WKDW PHQ ZRPHQ DQG F K  
WKHLU ODERXU IRU D VPDOO SDUW RI ZK  
RI ZKDW WKHLU ODERXU LV FDSDEOH RI  
DV WKH LQVWUXPHQWV RI S R G X F W L R Q I  
FRPSHOOHG WR SD\ D KHDY\ WULEXWH W  
FXOWLYDWLQJ ODQG RU SXWWLQJ PDFKL  
DQG WKH PDFKLQH DUH IUHH WR SURGXF  
O D H V W S U D R W L K M W W K D Q W K H J U H D W H V W D  
ZHOO EHLQJ FDQ RQO\ EH WHPSRUDULO\  
ERXJKW E\ WKH J S R Y H E W L R Q , D V I O D R U E T R H W Q V  
GLVWULEXWH WKH SURILWV UHDOLJHG E\  
WKRXVDQGV RI RWKHU ZRUNH V ^ D Z U H E I [ S  
€ < ~ z O E • z † ^ Ž † • ^ • € ^ ^ } O E † • † ~ O E O E z : { ~ , † € ^ •  
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7KLV JHQHUDOLJHG DLP FDQQRW EH WK  
ZK\ VRFLHW\ DV D ZKROH LI LW WDNHV V  
EH FRPSHOOHG WR H[SURSULDWH DOO W  
ZHDOWK , W ZLOO KDYH WR WDNH SRVVH  
FRPPXQLFDWLRQ EHVLGHV LW ZLOO KDY  
SURPRWH JHQHUDO ZHOO EHLQJ DV ZHO  
SURGXFWLRQ

+RZ PDQ\ KRXUV D GD\ ZLOO PDQ KDYH W  
 D FRPIRUWDEOH KRPH DQG QHFHVVDU\ F  
 KDV RIWHQ SUHRFFXSLHG 6RFLDOLVWV  
 WKDW IRXU RU ILYH ~~KLFXUVRQ~~ ~~EDQZRWDRG~~ (C  
 XQGHUVWRRG WKDW DOO PHQ ~~ZRHUQMDSPW~~  
 )UDQNOLQ IL[HG WKH OLPLW DW ILYH KR:  
 QRZWKH SRZHU RI SURGXFWLRQ KDV DXJ  
 ,Q VSHDNLQJ RI DJULFXOWXUH IXUWKHU  
 PDGH WR \LHOG WR PDQ ZKHQ KH ~~FLXQWLF~~  
 WKURZLQJ VHHG KDSKD]DUG LQ D EDGO\  
 ,Q WKH JUHDHW ~~WHUHQ~~ ~~SPH~~:ULFD VRPH RI Z  
 PLOHV EXW KDYH D SRRUHU VRLO WKDQ  
 RQO\ a` WR ae (QJOLVK EXVKHOV SHU (Q.  
 KDOI WKH \LHOG RI (XURSHDQ IDUPV RU  
 \$QG QHYHUWKHOHVV WKDQNV WR PDFKL  
 (QJOLVK DFHVP ~~DI~~ ~~GDQ~~ SURGXFH LQ D \I  
 GHOLYHU WKH EUHDG RI a` ``` SHRSOH D  
 7KXV LW ~~ZRFXHGRUXD~~ PDQ WR ZRUN XQ ~~6~~  
 KRXUV VD\ í KDOI GD\ V RI ~~Hi~~ ~~GR~~ ~~RUV~~ ~~D~~ ~~H~~ ~~Z~~ ~~DR~~  
 WR ZRUN c` KDOI GD\ V WR JXDUDQWHH W  
 : H VKDOO DOVR SURYH E\ UHVXOWV RE  
 UHFRXUVH WR LQWHQVLYH DJULFXOWXUH  
 EUHDG PHDW YHJHWDEOHV DQG HYHQ  
 \$JDLQ LI ZH VWXG\ WK ~~6~~ ~~Z~~ ~~H~~ ~~R~~ ~~O~~ ~~M~~ ~~Q~~ ~~J~~ ~~J~~ ~~H~~ ~~E~~ ~~N~~  
 WR ~~G~~ ~~M~~ ~~F~~ ~~D~~ ~~Q~~ ~~D~~ ~~V~~ ~~F~~ ~~H~~ ~~U~~ ~~W~~ ~~D~~ ~~L~~ ~~Q~~ ~~J~~ ~~W~~ ~~K~~ ~~D~~ ~~W~~ ~~O~~ ~~W~~ ~~V~~ ~~D~~ ~~K~~ ~~R~~ ~~E~~ ~~L~~ ~~W~~ ~~D~~  
 VHPLGHWDFKHG OLWWOH KRXVH DV WKH  
 a d`` WR a h`` KDOI GD\ V ~~¶~~ ~~Z~~ ~~R~~ ~~L~~ ~~N~~ ~~F~~ ~~H~~ ~~Q~~ ~~e~~ ~~W~~ ~~K~~ ~~R~~ ~~S~~ ~~X~~  
 KRXVH RI WKDW NLQG ODVWV e` \HUV D  
 ZRUN D \HDU ZRXOG SURYLGH ZHOO IXUC  
 QHFHVVDU\ FRPIRUW ~~UR~~ ~~D~~ ~~D~~ ~~Z~~ ~~DR~~ ~~Q~~ ~~O~~ ~~K~~ ~~L~~ ~~U~~ ~~L~~ ~~Q~~ ~~J~~  
 IURP DQ ~~H~~ ~~P~~ ~~S~~ ~~O~~ ~~R~~ ~~U~~ ~~N~~ ~~P~~ ~~D~~ ~~Q~~ ~~S~~ ~~D~~ ~~V~~ ~~I~~ ~~U~~ ~~R~~ ~~P~~ ~~g~~ ~~e~~ ~~W~~ ~~R~~ ~~a~~  
 ODUN WKDW WKHVH ILJXUHV UHSUHVHQ'  
 (QJODQG ~~E~~ ~~H~~ ~~R~~ ~~Q~~ ~~D~~ ~~\~~ ~~J~~ ~~L~~ ~~Y~~ ~~H~~ ~~Q~~ ~~W~~ ~~K~~ ~~Q~~ ~~L~~ ~~G~~ ~~H~~ ~~W~~ ~~H~~ ~~R~~ ~~W~~ ~~L~~ ~~R~~ ~~H~~ ~~R~~

%HOJLXP Z/RKUNXVHOML WQ WKRVDYHqBHHQ E;  
VPDOOHU FRVW 6R WKDW WDNLQJ HYHU  
LQIDUPLQJ WKDW[DQ]DGZMBDLRW\ c`RU d`  
ZLOOLFNMIWR JXDUDQWHH D SHUIHFWO\ FI  
7KHUH QRZ UHPDLQV FORWKLQJ WKH H  
LPSRVVLEOH WR IL[ EHFDXVH WKH SURIL  
FDQQRW EH HVWLDPDWHG /HW XV WDNH F  
WULEXWH OHYLG RQ HYHU\ \DUG RI LW  
ZRRO PHUFKDQWV DQG DOO WKHLU LQW  
FRPSDQLHV PLOO RZQHUV ZHDYHUV GF  
DQG FRPPLVLRQ DJHQWV DQG ZH VKDO  
ZKROH VZDUP RI FDSLWDOLVWV IRU HDFF  
SHUIHFWO\ LPSRVVLEOH WR VD\ KRZ PDQ  
...c RU ...d JRURLOGRDVKRS UHSUHVHQWV  
:KDW LV FHUWDLQ LV WKDW ZLWK SUHV  
PDQXIDFWXUH DQ LQFUHGLEOH DPRXQW  
\$ IHZ H[DPSOHV FZLOOXVXUQ WKH 8QLWH  
PLOORV IRU VSLQQQLQJ DQG ZHDYLQJ ag  
b`cc` `` `` \DUGV RI FRWWRQ JRRGV EH  
WKH DYHUDJH PRUH WKDQ ab` `` \DUGV  
c`` GD\V¶ ZRUN RI i e KRXUV HDFK VD\ d  
\$GPLWWLQJ WKDW D IDPLO\ QHHGV b`` \C  
HTXLYDOHQW WR e`ç KRXUV¶ DZRUNI \$QOR ZU  
VKRXOG KDYH WKUHDG FERWWWRQVW R\KDW I  
ZHDYH FORWK ZLWK VR DVIWRP LP[DQXZDWW  
\$V WR WKH UHVXOWV REWDILGHGOEVW BZ  
8QLWHG 6WDWHV WHDFK XV WKDW LQ ahç  
WKH\ PDGH a` `` \DUGV RI ZKLWH FRWWF  
ahhf WKH\ ZRYH c` `` \DUGV E\ ZRUNLQ  
(YHQ LQ SULQWHG FRWWRQ JRRGV WKH  
LQFOXGHG cb` `` \DUGV LQ bV Dg` DKRRXUW d  
KRXVKXV WR KDYH \RXU b`` \DUGV RI èZKL  
KRXUV¶ ZRZRXDIGHFKI,W LV QHFHVVDU\ W  
PDWHULDO UHDFKHV WKHVH IDFWRULHV  
ILHOGV DQG WKDW WKH WUDQVIRUPDWL  
FRQYHUWHG LQWR JRRGV DUH FRPSOHWF  
EXWKHVH b`` \DUGV IURP WKH WUDGHV D\



WKH YHUA\ WRD\ WGD\ V ZRUN RI a` KRXU\  
\$QG DV WR WKH (QJOLVK SHDVDQW KH Z  
PRUH WR REWDLQ WKLW OX[XU\  
%\ WKLW H[DPSOH ZH DOUHQD\ HSDUW\  
D ZHODQRJHG VRFLHW\ ZH FRXOG GUHV  
GR WRGD\  
%XW ZLWK DOO WKLW ZH KDYH RQO\ UH  
HDFK WR REWDLQ WKH IUXLWV RI WKH HI  
ZKLFK RQO\ PDNH ZRUD\ DV\ WKUH\ HDU FR  
GD\ V LI ZH GHGXFW KROLD\  
7KHUH UHPDLQ VWLOO ae` KDOI GD\ V Z  
RWKHU QHFH\ ZLQULHW\ FRHO LWHH D IXUQH W  
HWF  
,W LV HYLGHQW WKDW WKHVH FDOFXOD  
DOVR EH SURYHG: KDOI R WKDNUH ZIDQ WR IDQ  
VR FDOOHG FLYLOLJHG QDWLRQV SURGX  
WUDGHV GRRPH\ GQV\ GQV\ WPS\ H DUH RQO  
PLGGOHPHQ ZH VHH WKDW LQ HDFK QDW  
EH GRXEOHG \$QG LI LQVWHDG RI HYHU\  
XVHIXO FRPPRGLWLHV DQG LI VRFLHW\ \  
HQUHWKR VH b` SHRSOH ZRXOG RQO\ KDYH  
SURGXFWLRQ GHFUHDV\ EQJW\ RUGH\ GW\ FZR\ WQ  
HQUHWKLFK LV JRLQJ RQ LQ WKH ULFK ID  
VHUYDQWV RU LQ WKH DGPLQLF\ WUDWR  
HYHQ VL[ LQKDELWDQWV DQG WR XWLOL  
SURGXFWLYLW\ RI D QDWLRQ ,Q IDFW Z  
WKUHH KR\UR\ SU\ B\ XFH DOO WKH JRRGV  
\$IWHU VWXG\ LQJ DOOZW\ KFD\ HD\ ID\ FLV\ V WR  
IROORZLQJ FRQFOXVLRQ\ P, \$D\ V\ Q\ JDD\ VIR\ Z  
LQKDELWDQWV HQJDJHG LQ DJULFX\ B\ DWKL  
IRU H[DPSOH ZLWK WKH 'HSDUWPHQW RI  
VRFLHW\ DOO FKLOGUHQ OHDUQ WR ZRUI  
EUDLQV \$GPLW WKDW DOO DGXOWV VDY  
FKLOGUHQ ELQG W\ KHR\ U\ V\ O\ Y\ R\ D\ W\ R\ HZ\ B\ W\ H\ N\  
WZHQRW\ WZR WR ID\ Q\ W\ KY\ H\ WR\ W\ KI\ L\ V\ R\ O\ F\  
FKRVHQ WKHPVHOYHV LQ DQ\ RQH RI WKI  
WKLW FLW\ D\ Q\ H\ F\ R\ V\ L\ E\ K\ H\ D\ H\ V\ R\ FLHW\ FRXC

ZHOO EHLQJ WR DOO LWV PHPEHUV D ZH  
HQMR\HG WRGD\ E\ WKH PLGGHODH K OZRWJH  
EHORQJLQJ WR WKLV VRFLHW\ ZRXOG KD  
ZKLFK KH FRXOG GHYRWH WR VFLHQFH I  
FRPH XQGHU WKH HFDWVH WLVVRO SUREDE  
ZKHQ PDSUTR GXFWLYLW\ ZLOO KDYH DXJPI  
ORQJHU DSSHDU OX[XULRXV RU LQDFFHV

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ODQ LV QRW D EHLQJ ZKRVH H[FOXVLYH ;  
SURYLGLQJ D VKHOWHU IRU KLPVHOI \$V  
RWKHU QHHGV ZKLFK JHQHUDOO\ VSHDI  
FKDUDZLWU WKUXVW WKHPVHOYHV IRUZD  
YDULHW\ WKH\ YDU\ ZLWK HDFK DQG HYI  
FLYLOLJHG WKH PRUH ZLOO LQGLYLGXDC  
GHVLUHV EH YDULHG

(YHQ WRGD\ ZH VHH PHQ DQG ZRPHQ GF  
DFTXLUH PHUH WULIOHV WR REWDLQ VR  
LQWHOOFWXDO RU PDWHULDO HQMR\PH  
RI WKHVH GHVLUHV IRU OX[XU\ EXW LW  
PRQRWRQ\ RI H[LVWHQFH ~~DOGGPONIH~~ LVL  
LQHYLWDEOH GUXGJH DQG VRUURZV EH  
FRXOG QHYHU REWDLQ D VLQJOH SOHDV)

, I ZH ZLVK IRU D 6RFLDO 5HYROXWLRQ  
EUHDG WR HYHU\RQH WR WUDLQVZKULPKWZ  
HYHU\ GD\ VHH FDSDEOH ZRUNPHQ GDQJ  
HPSOR\HU ZKR ZLOO H[SORLW WKHP ZRF  
DW QLJKW ZKROH IDPLOLHV UHGXFHG W  
G\LQJ IRU ZDQW RI FDUH DQG HYHQ IRU  
LQLTXLWLHV WKDW ZH UHEHO

%XW ZH H[SHFW PRUH IWRPHW KWKSHWY ROK  
FRPSHOOHG WR VWUXJJOH SDLQIXOO\ IR  
KLJKHU GHOLJKWV WKH HKBKHWVZLLWIKLF  
VFLHQWLILF GLVFRYHU\ RI DUW DQG HV

WR REWDLQ IRU DOO RI XV MR\ V WKDW D  
OHLVXUH DQG WKH SRVVLEV LQVW HFOGHFW  
WKDW WKH VRFLDO UHYROXWLRQ PXVW J  
EHHQ VHFUXHG OHLVXUH LV WKH VXSUH  
1R GRXEW QRZDGD\ V ZKHQ KXQGUHGV  
LQ QHHG RI EUHDG FRDOXFORWKLQJFUDC  
WKH ZRUFNHLQ G PXVW JR ZLWKRXW EUHDG  
WKH QHFHVVDU\ IWRQ DQBGWK BOMFKUZH F  
ZLOO EH WKH PRUH NHHQO\ IHOW \$QG D  
DQRWKHU WKH YDULHW\ RI WDVWHV DQC  
SURJUHVV WKHUH ZLOO DOZD\ V EH DQG  
EH PHQ DQG ZRPHQ ZKRVH GHVLUH ZLOC  
LQGLYLGXDOV LQ VRPH SDUWLFXODU GLI  
(YHU\ERG\ GRHV QRW QHHG D WHOHVFR  
JHQHUDO WKHUH DUH SHRSOH ZKR SUHI  
PLFURVFRSH WR VWXG\LQJ WKH VWDUU\  
SLFWXUHV \$ SDUWLFXODU LQGLYLGXDO  
JRRG SLDQR ZKLOH DQRWKHU LV SOHDE  
WKH DUWLWLF QHHGV H[LWV LQ DOOWKQ  
PDQ ZKR KDV DUWLWLF QHHGV FDQQRW  
IRUWXQH RU E\ GLQW RI KDUG ZRUN DSS  
FDSLWDO ZKLFK ZLOO HQDEOH KLP WR W  
FKHULV KRISHWKRIPH GD\ VDWLVI\LQJ KLV V  
WKLW UHVRQ KH UHSURDFKHV WKH LGHI  
PDWHULDO OLIH RI HDFK LQGLYLGXDO D\  
\RX PD\ SHUKDSV KDYH EUHDG IRU DOO  
EHDXLIXO SLFWXUHV RSWLFDO LQVWU  
MHZ HLOUVKRUW WKH PDQ\ WKLQJV WKDW  
KXPDQ WDVWHV \$QG \RX VXSSUHVV WKH  
EHVLGHV WKH EUHDG DQG PHIDW ZKLEDO  
GUDE OLQHQ LQ ZKLFK DOO \RXU ODG\ FI  
7KHVH DUH WKH REMHFWLRQV ZKLFK DC  
DQG ZKLFK WKH IRXQGUV RI QHZ VRFLH  
QHYHU XQGHUVWRRG 7KH\ EHOLHYHG WI  
VXLFLHQW FORWK WR GUHVV DOO LWV PF  
3EURWKHUV' FRXOG VWUXP D SLHFH RI P  
ZDV HQRXJKJR7WKWKIRW WKH IHHOLQJ IRU

DV ZHOO DJKHODQK HQRWUZLWKVWDQGLQJ  
IHHOLQJ YDULHV DFFRQGHQLJQWFRQWUHL  
WKH VDPH ,Q YDLQ GLG WKH FRPPXQLW\  
OLIH LQ YDLQ GLG LW VXSSUHVV DOO H\  
LQGLYLGXDDWQ GLG LW HOLPLQDWH DO  
WDVWHV EURNH IRUWK DQG FDXVHG JHG  
VRPHERG\ SURSRVHG WR EX\ D SLDQR RL  
HOHPHQWV RI SURJUHVV IODJJHG 7KH V  
LW FUXVKHG DOO LQGLYLGXDDQGHDOLOQGF  
: LOO WKH DQDUFKLWV &RPPXQH EHLPS  
(YLGHQWO\ QRW LI LW XQGHUVWDQGV W  
PDWHULDO OLIH LW PXVW DOVR VWULYH  
PLQG

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: H IUDQNO\ FRQIHVV WKDW ZKHQ ZH WKU  
WKDW VXUURXQGV XV ZKHQ ZH KH DU WK  
WKH VWUHHWV EHJLQJ IRU ZRUN ZH DU  
PHQ DFW LQZIRVRFIPHPVEHUV DUH SURSHL  
LQGLYLGXDOV GHVLURXV RI SRVVHVVLQJ  
: H DUH WHPSWHG WR DQVZHU /HW XV I  
VKDOO VHH WR FKLQD DQG YHOYHW ODW  
%XW DV ZH PXVW UHFRJQLJH WKDW PDG  
WKH VWUHQJWK RI \$QDUFK\ OLHV SOKPLD  
IDFXOWLESDVLRQV DQG LJQRUHV QRQH  
H[SODLQ KRZ PDQ FDQ FRQWULYH WR VD  
QHGGV

: H KDYH DOUHDG\ PHQWLRQHG WKDW E  
RI IRUW\ ILYPHRUFRLXVG HDWDSDSURGQFF  
JXDUDQWHH FRPIRUW WR VRFLHW\  
%XW WKH ZGDNIRI D PDQ DFFXVWRPHG W  
KRXUV LW LV D a` KRXUV PGG\OIRUVW`DG

FRXUVH ZKHQ D PDQ LV KDUQHVVHG WR  
XQGHUPLQHG DQG KLV LQWHOOLJHQFH L  
SRVVLELOLW\ RI YDU\LQJ RFFXSDWLRQV  
ZLWK LQWHOOFWXDO ZRUN KH FDQ UHF  
ZLWK SOHDVXUH IRU &RQRUHQWFOVQDZK  
KDYH GRQH WKH d RU e KRXUV RI PDQXD  
H[LVWHQFH ZLOO KDYH EHIRUH KLP e RL  
DFFRUGLQJ WR KLV WDVWHV \$QG WKHV  
SURFXUH IRU KLPVHOI LI KH DVVRFLDWH  
DGGLWLRQ WR WKH QHFHVVDULHV JXDUD  
+H ZLOOJELIVLWUWU KLV WDVN LQVWUR  
KH RZHV WR VRFLHW\ DV KLV FRQWULEX\  
HPSOR\ WKH VHFRQG KLV ZOHRI IRU KLV  
DUWLWLF RU VFLHQWLIF QHHGV RU KI  
7KRXVDQGV RI VRFLHWLHV ZLOO VSULQ  
SRVVLEOH IDQF\

6RPH IRU H[DPSON ZLOO JLYH WKHLU  
WKHQ IRUP JURXS FRPSULVLQJ DXWKRU  
GUDXJKWVPHQ DOO SXWXSURISDFRPIRC  
GHDU WR WKHP

1RZDGD\V DQ DXWKRU NQRZV WKDW WK  
ZKRP IRU WKH VXP RI DKHHZVQLDQWQXV\  
ERRNV EXW KH KDUGO\ FDUHLVFRWQRX  
FRPSRVLWUWUWUWUWUWUWUWUWUWUWUWUWU  
PDFKLQH GLHV RI DQDHPD DUH WKHUH

%XW ZKHQ WKHUH ZLOO EH QR PRUH VV  
SLWWDQFH ZKHQ WKH H[SORLWHG ZRUN  
KDYHRZDQGHV WR SXW GRZQ LQ EODFN D  
RWKHUV WKHQ WKH DXWKRUV DQG VFLH  
DPRQJ WKHPVHOYHV DQG ZLWK WKH SUL  
DQG WKHLU SRHWU\

6R ORQJ DV PHQ FRQVLGHU IXVWLDQ DC  
LW ZLOO DSSHU DPD]LQJ WR WKHP WR \  
W\SH IRU KDV KH QRW D ]PQDVLXP RU  
WKH RSSUREULXP FRQQHFWHG ZLWK PDQ  
KDYH WR ZRUN ZLWK WKHLU KDQGV WKH  
DXWKRUV DV ZHOO DV WKHLU DGPLUHUV

FRPSRVLQJ VWLFNV DQG W\SH WKH\ ZLO  
WRJHNDKGDGPLUHUV RI WKMRZRHW WS WK  
VKDSH LW LQWR SDJHLQDORSXUDLW\ UWRIPQ\  
EHDXLIXO PDFKLQHV LQVWUXPHQWV RI  
IURP PRUQ WLOO QLJKW ZLOO EH D VRX  
XVH RI WKHP LQ RUGHU WR JLYH YRLFH \  
: LOO OLWHUDWLXOLHWRH SREHWLW H:OHVV  
RXW RI GRRUV RU KHOSHG ZLWK KQO MKC  
QRYHOLVW ORVH KLV NQRZOHGJH RI KXP  
ZLWK RWKHU PHQ LQ WKHQWKH VODRLOJWR  
UDLOZD\ OLQH" &DQ WKHUH EH WZR DQV;  
OD\EH VRPH ERRNV ZLOO EH OHVV YROX  
RQ IHZHU SDJHV OD\EH IHZHU ZDVWH VK  
SULQWHG ZLOO EH PRUH DWWHQWLYHO\  
DSSHDOJMR FLQDQH RI EHWWHU HGXFDW\  
FRPSHWHQW WR MXGJH  
ORUHRWKUH DUW RI SULQWLQJ WKDW KI  
\*XWHQEHU VWLOO LQ WDWHLQMDZ\KRXUV  
LV ZULWWHQ LQ WHQ PLQXWHV EXW PRU  
WKRXJKW DUH EHLQJ VRXJKW DIWHU DQG  
:KDW D SLW\ HYHU\ DXWKRU GRHV QRW  
KLV ZRUNV :KDW SURJUHVV SULQWLQJZ  
ORQJHU EH XVLQJ PRYDEOH OHWWHUV D

, , ,

,V LW D GUHDP WR FRQFHLYH KDYLQBLEHWF\  
DOO KDYLQJ UHFHLYHG DQ HGXFDWLRQ V  
DUW DQG DOO KDYLQJ DRXQGUFRWRLGR \  
ZRUNV RI WKHLU FKRLFH E\ FRQWULEXW  
KDYH DOUHDG\ KXQGUHQGRIRWKDUQVHGL  
VRFLHWLHV DUH QRWKLQJ EXW YROXQWC  
EUDQFKHV RI OHDUQLQJ DQG DVVRFLDW

ZRUNV 7KH DXWKRUV ZKR ZULWH IRU WK  
SDLG DQG WKH SHULRGLFDOV DSDUW IL  
VDOH WKH\ DUH VHQW JUDWLW WR DOO  
FXOWLYDWLQJ WKH VDPH EUDQFKHV RI O  
LQVHUW LQ LWV UHYLHZ D RQH SDJH QR\  
PD\ SXEOLVK WKHUHLQ DQ H[WHQVLYH ZI  
ZKLOH RWKHUV ZLOO FRQILQH WKHPVHO\  
SRLQW IRU IXUWKHU UHVHDFK ,W GRH\  
DUH DVVRFLDWHG IRU WKH SURGXFWLRQ  
LQWHUHVW

,W LV WUXH WKDW ~~DNHDKHQHQ~~ ~~GLRFLGHWD~~  
SULQW ~~WLFH~~ ZKHUH ZRUNPHQ DUH HQJDJHG  
WKRVH ZKR EHORQJ WR WKH OHDUQHG V  
LQGHG LV FDUULHG RQ XQGHU YHU\ ED\  
ZRXOG JLYH D JHQHUR ~~FKLH~~ ~~SHGLR~~ ~~BR~~ ~~SR~~ ~~QFM~~  
PHPEHUV ZRXOG ~~JDCRL~~ ~~ZHKR~~ ~~DQWR~~ ~~Q~~ ~~UODERXI~~  
ZRXOG EH WKH SULQW ~~GH~~ ~~DK~~ ~~Q~~ ~~B~~ ~~QLWR~~ ~~FLHWI~~  
DVVRFLDWLRQV RI H[SORUHUV<sup>2</sup> ~~DO~~ ~~RYN~~ ~~QR~~ ~~ZI~~  
PDQXDO WUDGH DQG DOO LQWHUHVWHG

,I IRU H[DPSON WKH ~~6RFLD~~ ~~WO~~ ~~IZV~~ ~~OW~~ ~~KB~~  
H[SORUDWLRQ ~~RW~~ ~~WD~~ ~~WD~~ ~~HD~~ ~~HD~~ ~~FK~~ ~~PHPEHU~~ ~~ZI~~  
UHVHDFK DQG a` `` REVHUYHUV ZKHU  
PRUH LQ D \HDU WKDQ ZH FDQ GR LQ WZI  
EH SXEOLVKHG a` `` PHQ ~~D~~ ~~GH~~ ~~ZRP~~ ~~MO~~ ~~DC~~  
UHDG\ WR GUDZ PDSV HQJUDYH GHVLUW  
JODGQHVV ZLOO WKHQ ~~JLXP~~ ~~MUK~~ ~~MLR~~ ~~HQ~~ ~~SDR~~  
LQGRRU ZRUN \$QG ZKHQ ~~WK~~ ~~H~~ ~~Z~~ ~~UOZ~~ ~~ULN~~ ~~GI~~  
KXQGUHG EXW a` `` UHDGHUV LQWHUHV

7KLV LV WKH GLUHFWRQ LQ ZKLFK SUR  
ZKHQ (QJODQG IHOW WKH QHHG RI D FRP  
ODQJXDJH WKH ELUWK RI D /LWWUp ZKF  
QRW ZDL ~~W~~ ~~GH~~ ~~Q~~ ~~W~~ ~~H~~ ~~HUV~~ ~~ZHUH~~ ~~DSSHDO~~ ~~HGU~~ ~~W~~  
WKHLU VHUFLFHV VSRQW ~~W~~ ~~Q~~ ~~HUR~~ ~~Q~~ ~~OD~~ ~~FNQ~~ ~~W~~  
WDNH QRWHV DQG WR DFFRPSOLVK LQ D  
QRW FRPSOHWH LQ KLV OLIHWLPH ,Q DO  
VSLULW LV EUHDNLQJ IRUWK DQG ZH VK  
KXPDQLW\ FRXOG ZH QRW JXHVV WKDW W



WHQWDWLYH FRRSHUDWLRQ ZKLFK LV JU  
ZRUN

)RU WKLW GLFWLRQDU\ WR EH D UHDOO  
QHFHVVDU\ WKDW PDQ\ YROXQWHHU DXW  
KDYH ZRUNHG LQ FRPPRQ EXW VRPHWKL  
WKH 6RFLDOLVWHU\WHXW HZKRSOHM RI PDQ  
ZRUN FRPELQHG ,W KDSSHQV LQ RXU QH  
FRPSRVHV LQ OHDG\JKHV VZFK DUWWLHPSHW  
LQGLFDWH LQ ZKLFK GLUHFWRU HYROX\  
7KH\ VKRZ WKH URDG\WIXOHEH ZUKWQ D PD  
XVHIXO\DWBRUDG WKDW JRHV EH\RQG WKHZ  
QRW KDYH WR ORRN IRU DQ HGLWRU ZKR  
ZLOO ORRN IRU FROODERUDWRUV DPRQJ  
ZKR DSSURYH WKH LGRDHMMKILU VOKHZ\ ZRQ  
ERRN RU MRXUQDO

/LWHUDWXUH DQG MRXUQDOLVP ZLOO F  
OLYLQJ DW WKH FRVW RI RWKHUV %XW I  
MRXUQDOLVP IURP ZLWKLQ DQG ZKR GRI  
VKRXOG DW ODVW EH DEOH WR IUHH LWV  
ZKR QRZ H[SORLW LW DQG IURP WKH PX  
SD\V IRU LW LQ SURSRUWLW\ WRHLWDVPH  
LWVHOI WR WKH EDG WDVWH RI WKH JUH  
/HWWHUV DQG VFLHQFH ZLOO RQO\ WDN  
KXPDQ GHYHORSPHQW ZKHQ IUHHG IURP  
H[FOXVLYHO\ FXOWLYDWHG E\ WKRVH ZK  
WKHP

/LWHUDWXUH VFLHQFH DQG DUW PXVW  
FRQGLWLRQ ZLOO WKH\ VXFFHHG LQ HPD  
WKH 6WDWH RI &DSHWRDQ PDQGRFUIWWH ZE

:KDW PHDQV KDV WKH VFLHQWLWV RI W  
KLP" 6KRXOG KH DVN KHOS RI WKH 6WDW  
FDQGLGDWH LQ D KXQGUHG DQG ZKLFK  
RVWHQVLEO\ WR NHHS WR WKH EHDWHQ  
RI 6FLHQFHV RI )UDQFH UHSXGLDWHG 'DI  
6W3HWHUJUHWHG ZLHOGHFRQPHPSW DQG  
6RFLHW\ RI /RQGRQ UHIXSDSLWRZKSLXFKOKM  
WKH PHFKDQLFDO HTXLYDOHQW<sup>9</sup>RI KHDW  
,W ZDV ZK\ DOO JUHDW UHVHDUFKHV D  
KDYH EHHQ PDGH RXWVLGH DFDGHPLHV I  
HQRXJK WR UHPDLQ LQGHSHQGHQW EOLN  
XQGHUPLQHG WKHLU KHDODKGERIZWHLQLQ  
ORVLQJ HQGOHVV WLPH DRUGZDQDEGHDWB  
LQVWUXPHQWV RU ERRNV QHFHVVDU\ WR  
DJDLQVW KRSH DQG RIWHQ G\LQJ EHIRU  
7KHLU QDPH LV OHJLRQ

\$OWRJHWHU\WVHP RI KHOS JUDQWHG I  
KDV DOZD\V HQGHDIRXUH WR HPDQFLS  
WKHUH DUH WKRXVDQGDRUJEDDQGHBDLR  
YROXQWHHUV LQ (XURSHKDDQ\$PILYHDO  
GHJUHH WKDW DOO WKH UHVXRUFHV RI V  
PLOOLRQDLUH ZRXOG QRW EX\ WKHLU  
DV ULFK DV WKH =RRORJLFDO 6RFLHW\ R  
YROXQWDU\ FRQWULEXWLRQV

,W GRHV QRW EX\ WKH DQLPDOV ZKLFK  
DUH VHQW E\ RWKHU VRFLHWLHV DQG E\  
=RRORJLFDO 6RFLHW\ RI %RPED\ ZLOO V  
D KLSSRSRWDPXV RIUWHGKEQRJISWRDQVQI  
WKHVH PDJQLILFHQW SUHVHDMVLDYLIQSR  
TXDUWHUV<sup>2</sup>REILWGWJURSEWLOHV FRQFOFIKW  
FRQVLJQPHQWV RIWHQ FRPSULVH DQLPD  
JROG LQ WKH ZRUOG WKXV D WUDYHOSH  
DQG QRZ ORYHV LW DV KH ZRXOG ORYH I  
KH LV VXUH LW ZLKHDFHWUDUFGIIRUH SDLI  
QXPEHUOHFHVVRXU WKH PDLQWHQDQFH RI

:KDW LV GHIHFWLYH LQ WKH =RRORJLFI  
NLQGUHG VRFLHWLHV IHLN FDKDQW WKHPSH

NHHSHUV DQG QXPHURXN HQSQRWXRWRW  
DV PHPEHUV RI ZKLLH PDLQWKDYH QR RWF  
WKH VRFLHW\ WKDQ WR) SX6W HVOIHR Z DRE DVOH  
6RFLHW\ RQ WKHLU FDUGV ,Q D ZRUG ;  
FRRSHUDWLRQ

: H PD\ VD\ WKH VDPH DERXW LQYHQWRI  
:KR GRHV QRW NIQRIZQZKDW D\ DOO JUH  
6OHHSOHVV QLJKWV IDPLOLHV GHSULYH  
H[SHULPHQWV WKLV LV WKH KLVWRU\ RI  
LQG XVWU\ ZLWK LQYHQWLRQV ZKLFK DUH  
FLYLOL]DWLRQ

%XW ZKDW DUH ZH WR GR WR DOWHU W  
DUH EDG" 3DWHQWV KDYH EHHQ WULHG  
LQYHQWRI VHOOV KLV SDWHQW IRU D IH  
WKH FDSLWDO SRFNHVV WKH HQRUPRXV  
%HVLGHV SDWHQWV7KVR OFRVS HOK KLEPQWF  
UHVHDUFKHV ZKLFK WKHUHIRUH HQG LQ  
FRPLQJ IURP D EUDLQ OHVV DEVRUEHG L  
VXLFHV WR IHUWLOL]H WKH LQYHQWLRQ  
FRQWURO SDWHQWV KDPSH KRW KWS ERUC  
RI EHLQJ SDWHQWHG SDWHQW DQGHLO S  
WKH\ UHVXOW LQ RQH RI WKH JUHDW RE\  
LQYHQWLRQ

:KDW LV QHHGHG WR SURPRWH WKH VSI  
DZDNHQLQJ RI WKRXJKW WKH EROGQHVA  
HGXFDFWLRQ FDXVHV WR ODQJXLVK LW L  
ZKLFK ZRXOG LQFUHDVH WKH QXPEHU RI  
KXPDQLW\ LV JRLQJ WR WDNH D VWHS IR  
RI GRLQJ JRRG WKDW KDV LQVSLUHG DO  
5HYROXWLRQ DORQH FDQ JLYH WKLV LPS  
NQRZOHGJH WKLV FRQYLFWLRQ RI ZRUN

7KHQ ZH VKDOO KDYH YDVW LQRZHLW DQ  
RI DOO VRUWV LPPHQVH LQG XVWULDO O  
ZLOO EH DEOH WR ZRUN RXW WKHLU GUH  
WKHLU GXW\ WRZDUGV VRFLHW\ PDFKLQ  
ILYH RU VL[ KRXUV RI OHLVXUH ZKHUH V  
WKH\ ZLOO ILQG RWKHU FRPUDGHV H[SH

OLNHZLVH FRPLQJ IWRX O W X S U R V R O P H P G D I Q G  
D Q G H Q O L J K W W Q H H B Q K R X V K H H U R I W K H L U  
F D X V L Q J W K H O R Q J H G I R U V R O X W L R Q W F  
6 R O D Q y \ \* R U R G y N K Q V 3 B O W H H D G X S D U W L D  
W H F K Q L F D O P D W W H U V , W L V D I D F W R U \  
W R R O V D Q B Z P H R W R U H V X S S O L H G J U D W L V  
F K D H U G I R U D W F R V W S U L F H 8 Q I R U W X Q D V  
Z K H Q Z R U Q R X W E \ W H Q K R X U V \ O D W R M U  
F D U H I X O O \ K L G H W K H L U L O Y H W K W L R Q U H I K  
S D W H Q W V D Q G K B D S E W D Q L R I P S W K D W Q W W X R  
L Q W K H S D W K R I L Q W H O O H F W X D O D Q G P I

\$ Q G Z K D W D E R X W D U W " ) U R P D O O V L G H V  
G H F D G H Q F H B U B U W Q G H H G I D U E H K L Q G V  
5 H Q D L V V D Q F H 7 K H W H F K Q L F D O L W L H V R I  
W K R X V D Q G V R I S H R S O H J L I W H G Z L W K D F  
E U D Q F K E X W D U W V H H P V H W R Q I O F D I O R V P L H L  
E X W L Q V S L U D W L R Q I U H T X H Q W V D U W L V W \  
: K H U H L Q G H H G V K R X O G L W F R P H I U R P  
\$ U W L Q R X U L G H D O V \ Q R Q \ P R X V Z L W K F I  
I H Z U D U H Y H U \ U D U H H [ F H S W L R Q V W K H  
W R S H U F H L Y H Q H Z K R U L ] R Q V  
O R U H R W K L V L Q V S L U D W L R Q F D Q Q R W F R I  
I U R P O L I H D Q G S U H V H Q W V R F L H W \ F D Q Q  
5 D S K D H O D Q G O X U L O O R S D L Q W H G D W D  
F R X O G E H S X U V X H G Z K L O H U H W D L Q L Q J V  
W R G H F R U D W H F K X U F K H V Z K L F K W K H P V H  
V H Y H U D O J H Q H U D W Z R K E V E B M D O J L I F Y Z I Q W F L W  
L W V J U D O G H X R U Q Q H F W H G Z L W K W D I Q G F R I X C  
D S D L Q W H Z R U N H G I R U D S R S X O D U P R Q X P I  
F L W L ] H Q V D Q G L Q U H W X U Q K H U H F H L Y H

LQ WKH VDPH ZD\ DV GLG WKH QDYH WK  
VWDWXHV DQG WKH FDUYHG GRRUV 1RZ  
DVSLUH WR LV WR VHH KLV FDQYDV IUDI  
VRUW RI ROG FXULRVLW\ VKRS ZKHUH \F  
\$VFHQQRW WR DHEODJDXHRIDQG WKH3BRU  
9HODVTXHJ DQG SRRU 0XULOOLYHRW K\*H  
\$FURSROLV RI WKHLU FLWLHV DQG DUH  
RI WKH /RXYUH

:KHQ D \*UHHN VFXOSWRU FKLVHOHG KL'  
VSLULW DQG KH\$DOWL WIVSKDV FILRVV DZOU  
OLYH DJDLQ LQ WKHXQR WWHG% KDVVFRHDAHV  
QR PRUH FRPPXQLRQ RI LGHDV 7KH WRZ  
SHRSOH ZKR GR QRW ZKRRZ DRYQHQRPPKPF  
WKDW RI HQULFKLQJ WKHPVHOYHFK HDWDWI  
GRHV QBWKH[VMD WKHUODQG FDQ WKH LC  
UDJSLFNHU KDYH LQ FRPPRQ" 2QO\ ZKHQ  
RI QDWLRQV ZLOO KDYH UHQHZHG WKHL  
LWV LQVSLUDWLRQ KHQB7 KQF ZPQBQKH  
WKHFRQTXPHQW ZKLFK ZLOO QR ORQJHI  
IRUWUHVV WKHQZLOO FWHKIS VSDWDMUO DP  
NQRZ ZKHUH WR SXW WKHLU FDQYDVHV  
GHULYLQJ WKHLU SRZHU RI H[HFXWLRQ I  
PDUFKLQJ DOO WRJHWKHU WRZDUGV WKH  
%XW WLOO WKHQ DUW FDQ RQO\ YHJHW  
DUH WKRVH WKDW UHSUHVHQW QDWXUH  
PRXQWDLQ ZLWK LWV VSOHQGRXUV %XW  
ZRUN LQ WKH ILHOGV LI KH KDV RQO\ FR  
GHOLJKWHG LQ LW KLPVHOI" ,I KH RQO\ I  
FRXQWU\ KH VRDUV RYHU LQ KLV PLJUDV  
KDV QRW IROORZHG WKH SORXJK DW GDZ  
ODW VZHHS RI WKH VF\WKH QH[W WR ZLDW  
OLYHO\ \RXQJ JLUOV ZKR ILOO WKH DLU  
RI ZKDW JURZV RQ LW LV QRW DFTXLWHIG  
RQO\ LQ LWV VHUylfH DQG ZLWKRXW OF  
WKH EHVW SDLQWHUV KDYH SURGXFHG L  
WUXH WR OLIH QHDUO\ DOZD\W FOUHGLI

<RX PXVW KDYH VHHQ D VXQVH ~~WXZRNQW~~  
EHHQ D SHDVDQW DPRQJ SHDVDQWV WRX  
PXVW KDYH EHHQ DW VHD ZLWK ILVKHUP  
ILVKHG \RXUVHOI VWUXJJOHG ZLWK WKH  
ZRUN H[SHULHQFHG WKH MR\ RI KDXOLQJ  
VHHLQJ L ~~WRHPSXG~~ HUVWDQG ~~WRKHPSXG~~ ~~HWKID~~  
WLPH LQ DN ~~DFZQR~~ WKH IDWLJXHV DQG ~~JWIG~~  
PHWDOV E\ WKH YLYLG OLJKW RI D EODV  
WR XQGHUVWDQG WKH SRZHU RI PD ~~QXDQ~~  
LQ IDFW EH SHUPHDWHG ZLWK SRSXODU  
%HVLGHV WKH ZRUNV RI IXWXUH DUWL  
SHRSOH OLNH WKH JUHDW DUWLVWV RI  
ZLOO EH DQ LQWHJUDO SDUW RI D OLYLG  
ZLWKRXW WKHP DQ\ PRUH WKDQ WKH\ ZI  
JR WR ~~WKH~~ ~~ZD~~ ~~W~~ ~~L~~ ~~W~~ ~~W~~ ~~T~~ ~~R~~ JD]H DW KLV ZRU  
EHDXW\ RI VXFK FUHDWLRQV ~~IE~~ ~~W~~ ~~OR~~ ~~SUR~~ ~~HC~~  
PLQG

\$UW LQ RUGHU WR GHYHORS PXVW EH  
LQWHUPHGLDWH GHJU ~~DW5~~ ~~EVN~~ ~~H~~ ~~Q~~ ~~G~~ ~~B~~ ~~I~~ ~~G~~ ~~G~~ ~~WR~~  
SRHW 0RUULV KDYH SURYHG VR RIWHQ D  
PDQ LQ WKH VWUHHW LQ WKH LQWHULR  
RI D SXUH DUWLVWLF IRUP

%XW WKLV FDQ RQO\ EH UHDOL]HG LQ C  
OHLVXUH 7KHQ RQO\ VKDOO ZH VHH DUW  
ILQG URRP IRU KLV FDSDFLW\ IRU DUW F  
PDQXDO DQG WHFKQLFDO VXSSOHPHQWD  
XQGHUWDNH WR HPEHOOLVK WKH KRXXVH  
YROXQWHHUV WKH \RX ~~X~~ ~~J~~ ~~G~~ ~~S~~ ~~D~~ ~~L~~ ~~Q~~ ~~W~~ ~~H~~ ~~G~~ ~~H~~ ~~F~~ ~~R~~ ~~U~~ ~~I~~  
FHLQLQJV RI WKH JUHDW KRVSLWDO IRU

\$SDLQWHU RU VFXOSWRU ZKR KDV SUR  
RIHU LW WR WKH ZRPDQ KH ORYHW ~~R~~ ~~D~~ ~~N~~ ~~M~~  
KLV ZRUN LQVSLUHG E\ ORYH EH LQIHU  
YDQLW\ RI WKH SKLOLVWLQH EHFDXVH L  
7KH VDPH ZLOO EH GRQH DV UHJDUGV C  
QHFDVVDULHV RI OLIH +H ZKR ZLVKHV IF  
DVVRFLDWLRQ RI PXVLFDO LQVWUXPHQW  
SDUW RI KLV KDOI GD\ ~~V~~ ~~T~~ OHLVXUH KH ZI

,I KH LV IRQG RI DVWURQRPLFDO VWXGLI  
DVWURQRPHUV ZLWK LWV SKLORVRSKHU  
DUWLWV LQ DVWURQRPLFDO LQVWUXPH  
KDYH WKH WHOHVFRSH KH GHVLUHV E\ W  
LW LV HVSHFLDOO\ WKH URXJK ZRUN WKI  
REVHUYEDUWRNDFDUISHORWQUGPHUFKDZRUFI  
WRXFK EHLQJ JLYHQ WR WKH LQVWUXPH  
,Q VKRUW WKH ILYH RU VHYHQ KRXUV I  
GLVSRVDO DIWHU KDYLQJ FRQVHFUDWHC  
QHFHVVLWLHV IZRXOWGRDPSOLWIXIDOCORZH  
YDULHG 7KRXVDQGV RI DVVRFLDWLRQV  
QRZ WKH SULYLOHJH RI DQ LQVLJQLILFD  
/X[XUFHDVLQJ WR EH D IRROLVK DQGHRLV  
FODVV ZRXOG EHFRPH DQ DUWLWVLF SO  
(YHU\RQH ZRXOG EH WKH KDSSLHU IRU  
D OLJKW KHDUW WR DWWDLQ D GHVLUHG  
OX[XUWDFK ZLOO ILQG DQ LQFHQWLYH DQ  
OLIH SOHDVDQW  
,Q ZRUNLQJ WR SXW DQ HQG WR WKH G  
ZRUN IRU WKH KDSSLQHVV RI ERWK IRU

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\$€(~~z{...~:^'„

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:KHQ 6RFLDOLVWV PDLIOWM B I G Q I W R K P D W K D H V F  
FDSLWDOLVWV ZRXOG PDNH ZRUN DJUHF  
DQG XQKHDOWK K K G U D X G H H O D X J K H G D W \$ Q  
WKH VWULNLQJ SURJUHVV WKDW LV EHLG  
SURJUHVV KDV EHHQ DFKLHYHG HPSOR\I  
HFRQRP\ J R I R E Q V H U L Q H G W K H U H E \  
, W LV H Y L G H Q W W K D W D I D F W R U \ F R X O \  
V F L H Q W L I L F \$ Q D G E R W D L W R O R O H V V H Y L G H Q '  
W R P D N H L W V R , Q D V S D F L R X V D Q G Z H C  
L V H D V \ W R L Q W U R G X F H P D Q \ V P D O O D P F  
H F R Q R P \ R I W L P H R U \$ R Q G P D Q R B O W O B E R W K U  
N Q R Z D U H I R X O D Q G L X Q E H F D D X W K \ W K H Z R C  
W K H I D R Q L J D W L R Q R I I D F W R U L H V D Q G E H F I  
H Q H U L V W K H G L V W L Q F W L Y H I H D J D X Q L H I D R M L I  
1 H Y H U W K H O H V V Q R Z D Q G D J D L V R P Z H I I D C  
V R Z H O O P D Q D J H G W K D W L W Z R X O G E H D  
Z R U N E H L W Z H O O X Q G H U V W R R G Z H U H I  
G D \ D Q G L I H Y H U \ R Q H K D G W K H S R V V L E L O  
7 K H U H D U H L P P H Q V H Z R C Q N R Q Z K R L I F W K H N C  
X Q I R U W X Q D W H O \ F R Q V H F U K D W H D G H W B H U Q H I  
V D Q L W D U \ D Q G D I Q Q W H O L R L Q H Q K W H R B F F X S \ I  
O D Q G I L I W H H Q R I Z K L F K D U H U R R I H G Z L  
E U L F N V L V D V F O H D V Q F E R W W B D W B Q G W K H  
F O H D Q H G E \ D J D Q J R I Z R U N P H Q Z K R G R  
I R J U H G V W H H O L Q J R W V R U E O R R P V Z H L J K L



\RX VWDQG WKLW\ IHHW IURP WKH LPPH  
WHP SHUDWXUH RI PRUH WKDQ a `` GHJU  
ZKHQ LWV JUHDW GRRUV RSHQGWKOHWRP  
KDQGOHG E\ RQO\ WКУHH RU IRXU ZRUNF  
WDS FDXVLQJ LPPHQVH FUDQHV WR PRYF  
ZDWHU

<RX HQWHU WKHVH ZRUNV H[SHFWLQJ W  
DQG \RX ILQG WKDW WKHUH DUH QR VWD  
WKH FUDQNVKDIWV RI WUDHGV E W K D G M X F O  
DQG WKH ZRUNHU KDV EXW WR WXUQ D V  
VWHHO ZKLFK PDNHV D IDU PRUH KRPRJ  
RI WKH EORRPV ZKDWHYHU EH WKHLU W  
, H[SHFWHG DQ LQIHUQDO JUDWLQJ DQ  
VWHHO WKLW\ IHHW ORQJ ZLWK QR PRU  
ZKHQ , H[SUHVHG P\ DGPLUDWLRQ WR W  
DQVZHUHG

<sup>3</sup>\$ PHUH TXHVWLRQ RI HFRQRP\ 7KLV P  
LQ XVH IRU IRUW\ WZR \HUV ,W ZRXOG  
EDGO\ DGMXVHG μLQWHUIHUG† DQG F  
<sup>3</sup>\$QG WKH EODVW IXUQDFHV" ,W ZRXOG  
XWLOLJLQJ LW :K\ URDVW WKH IRXQG HU'  
WRQV RI FRDO"

<sup>3</sup>7KH VWDP SHUV WKDW PDGH EIXZLGH QJ  
ZDVWH ,V LW QHRV\ ESUHW M X UMRWIRDQ E<sup>2</sup> I  
WKHUH LV OHVV ORVV

<sup>3</sup>,Q WKHVH ZRUNV OLJKW FOHDQOLQH\  
EXW D VLP SOH TXHVWLRQVRE HFWGRPGRQ  
ZKDW \RX GR DQG KDYH HOERZ URRP

<sup>3</sup>,W LV WUXH ' KH VDLG <sup>3</sup>ZH ZHUH YHU\  
VR H[SHQVLYH LQ JMKM RZIDQLQJ RM GR DDU  
,W LV HYHQ VHR NQRZLQJ DW:PLQH V DUH (=  
=RVDQ HVFULSWLRQV DQG IURP QHZVSDSI  
ZLOO EH ZHOO YHQWLQDWHG ZLWK D WF  
OLEUDU\ WKHUH ZLOO EH QR KRUVHJURF  
WUDFWLRQ ZLOO EH FDUULHG RQ E\ PHD  
DW WKH PSXWQW DODWRUV ZLOO EH DOZD\  
EH H[SORVLRQV 7KLV LV QR GUHDP VXF

(QJODQG , ZHQW GRZQ LW JHQLH DDW DR Q  
TXHVWLRQ RYKHFRQRI ZKLFK , VSHDN  
GHSWK dff \DUGV KDV DQ RXW SZLWKRIR  
PLQHUWRQV D GD\ SHKHDFKZRWIKHHWYHL  
SLWV LQ (QJODQG DW WKH WLPH , YLVLW  
KDUGO\ c`` WRQV D \HDU SHU PDQ  
, I QHFHVWDRXOG EH HDV\ WR PXOWLS  
UHJDUGV WKH PD]VWUHQ)RXDRHUV QRW  
7KLV TXHVWLRQEKHQ KRZIHHTXHQWO\ G  
QHZVSDSHUV WKDW SXEOLF RSLQLRQ VK  
)DFWRHU DQGFBHQHDV KHDOWK\ DQG PDJ  
ODERUDWRULHV LQ PRGHUQ XOLYHJWLVRI  
ZLOOVPOQRXU SURGXFH  
, I LW EH VR FDQ ZH GRXEW WKDW ZRUI  
UHOD]DWLRQ LQ D VRFLHW\ RI HTXDOV I  
VHOO WKHPVHOYHV WR WRLO DQG WR D  
WDVNV ZLOEIBEDVSHDWLV HYLGHQW WK  
DUH KDUPIXO WR VRFLHW\ DV D ZKROH (  
ZLOO FUHDWH QHZ FRQGLWLRQV DQG WI  
PRUH SURGXFWLYH 7KH H[FHSWLRQV RI  
7KH VDPH ZLOO FRPH WR SDVV DV UHJD  
VRFLHW\ OD\ V RQ WKH VKRXOGRUPDRI WK

, ,

\$ VRFLHW\ UHJHQHUDWHG E\ WKH 5HYRO  
GLVDSDKDW ODVW IRSPURKDSVDWKH\PRVW  
LV DOVR WKH PRVW DQFLHQW 2QO\ LW Z  
E\ 3KDODQVWHULDQV QRU LQ WKH PDQQ  
&RPPXQLVWV  
3KDODQVWHULHV DUH UHSXJQDQW WR F  
UHVHUYHG PDQ FHUWDLQO\ IHHOV WKH C  
SXUSRVH RI FRPPRQ ZRUN ZKLFK EHFRP

IHHOV KLPVHOI D SDUW RI DQ LPPHQVH Z  
OHLVXUH UHVHUYHG 7RH SKDODQVWHQW  
GR QRW WDNH WKLV LQWR DFFRXQW RU  
DUWLILFLDO JURXSLQJV

\$ SKDODQVWHQW LV LQ IDFW QRWKLQJ EX  
VRPH DQG HYHQ DOO DW D FHUWDLQ SH  
IDPLO\ OLIH IDPLO\ OLIH RI WKH IXWXUH  
DSDUWPHQWV \$QJOR 6D[RQV HYHQ JRLQ  
WR HLJKW URRPV LQZDQJWRFBBDAL  
DSDUW 6RPHWLPHV D SKDODQVWHQW  
LV WKH JHQHUDO UXOH ,VRODWLRQLV  
QRUPDO GHVLUH RI KXPDQ QDWXUH 7KL'  
SULVRQ LV WKH LPSRVVLELOLW\ RI LVRO  
EHFRPHV WRUWXUH LQ LWV WXUQ ZKHQ

\$V WR FRQVLGHUDWKRW DUHFRRRMLP  
IDYRXU RI SKDODQVWHULHV WKH\ DUH V  
LPSRUWDQWWRKRRR\ UHDVRQDEOH RQH  
EHFDXVH WKH PDQ ZKR LV VDWLVILHG ZL  
WKH PDQ ZKR FXUVHV KLV VXUURXQGLQJ

2WKHU 6RFLDOLVWV UHXMWZKHWKRSKDC  
GRPHVWLF ZRUNLQJEWKHU DQVZHU <sup>3</sup>(D  
ZRUN ¶ 0\ ZLIH PDQDJHV WKHWRXWZLW  
PXFK ' \$QG LIJHWLLWSDRRLQJ DW 6RFLDO  
DGG ZLWK D JUDFLRXV VPLOH WR KLV ZI  
ZRXOG GR ZLWKRXW D VHUYDQWROVGRKZ  
WKH ZLIH RI RXU JRRG FRPUDGH 3DXO RI

6HUYDQW RU ZLIH PDQ DOZD\ UHFNRG  
%XW ZRPDQ WRR DW ODVW FODLPV KH  
6KH QR ORQJHU ZDQWV WR EH WKH EHDV  
VXLFLHQW ZRUN WR JLYH PDQ\ \HDUV RI  
6KH QR ORQJHU ZDQWV WRWKHWHHFRUN  
\$QG RZLQJ WR \$PHULFDQ ZRPHQ WDNLQ  
WKHUH LV D JHQHUDO FRPSODLQW RI WK  
GRPHVWLF ZRUN LQ WKH 8QLWHG 6WDWH  
RU WKH JDPLQJ WDEOHV DV WRKRKH ZRI  
WR VXEPLW WR DSGRUYODQW\DUHFRO

6WDWHV &RQW~~KHHTXRQXW~~L~~RQ~~ D YHU\ VLP  
LWVHOI 0DFKLQHUI\ XQGHUWDNHV WKUHF  
<RX EODFN \RXU ERRWV DQG \RX NQRZ  
FDQ EH PRUH VWXSLG WKDQ UXEELQJ D I  
\$ WHQWK RI WKH (XURSHDQ SRSXODWLRQ  
H[FKDQJH IRU D PLVHUIDE~~DH~~QWK~~H~~OR~~GH~~UD~~D~~  
FRQVLGHU KHUVHOI D VODYH LQ RUGHU  
WKLW SHUIRUPDQFH HYHU\ PRUQLQJ

%XW KDLUGUHVHUV KDYH DOUHDG\ PD  
KHDGV R:IKK~~V~~KURXOG ZHW~~KRW~~ DV~~SD~~\VDPH ;  
RWKHU H[WUHPLW\" 6R LW KDV EHHQ GRC  
EODFNLQJ ERRWV LV LQ JHQHUDO XVH LC  
XVH LV VSUHDGLQJ ~~RK~~W~~Q~~L~~GH~~V~~K~~R~~M~~F~~K~~R~~O~~Y~~C~~  
DUH ERDUGLQJ LQ WKH KRXVHV RI WKH V  
RQH VLQJOH HVWDEOLVKPHQW ZKLFK XQ  
ERRWV HYHU\ PRUQLQJ

\$V WR ZDVKLQJ XS :KHUH FDQ ZH ILQG  
RI WKLW ORQJ DQG GLUW\ ZRUN WKDW L  
ZRUN RI WKH GRPHVWLF VODYH LV RI QR  
,Q \$PHULFD WK~~FK~~GR~~H~~ED~~U~~W~~D~~DOUHDG\ D G  
KRW ZDWHU LV FRQYH\HG WR WKH KRXVH  
FRQGLWLRQV WKH SUREOHP Z<sup>2</sup>DOU~~D~~&RER~~S~~C  
VROYHG LW +HU PDFKLQH ZDVKHV WZHO  
DQG GULHV WKHP LQ OHVV WKDQ WKUHF  
PDQXIDFWXUHV WKHVH PDFKLQHV DQG VI  
DYHUDJH PLGGOH FODVV SXUVH \$QG ZK\  
WKHLU FURFNHU\ WR DQ HVWDEOLVKPHQ  
WKDW WKH WZR IXQFWLRQV EUXVKLQJ D  
VDPH DVVRFLDWLRQ

&OHDQLQJ UXEEL~~R~~XUW~~KD~~HQ~~V~~NL~~Z~~KRIQ ZDV  
OLQHQ VZHSLQJ IORRUV DQG EUXVKLQ  
ZKLFK DIWHUZDUGV RFFDVLQJ PFK WUR  
WKH\ KDYH VHWVOHG GRZQ DOO WKLW Z  
VODYH EXW LW WHQGV WR GLVDSSHU I  
PDFKLQ~~H~~DFKLQHV RI DOO NLQGV ZLOO EH  
WKH GLVWULES~~S~~R~~Z~~H~~R~~Q~~L~~Q~~S~~B~~M~~Y~~D~~W~~H~~ KRXVH'  
ZRUN WKHP ZLW~~KR~~X~~W~~ PXVFXODU HI

6XFK PDFKLQHV FRVW OLWWOH WR PDQ  
WKHP LW LV EHFDXVH WKH\ DUH QRW LQ  
H[RUELWDQW WD[ LV OHYLG XSRQ HYHU  
OLYH LQ JUDQG VW\OH DQG ZKR KDYH VS  
PDQXIDFWXUH VDOH SDWHQWV DQG GX  
%XW HPDQFLSDWLRQ IURP GRPHVWLF W  
PDFKLQHV FRVW WKH\ DUH RPP WKH LU SUF  
LVRODWLRQ WKH\ EHJLQ WR DVVRFLDWF  
ZKDW WKH\ GLG VHSUDUDWHO\  
,Q IDFW LQ WKH IXWXUH ZH VKDOO QR\  
ZDVKLQJ XS SODWHV D WKLUG IRU ZDRK  
WKH IXWXUH REHODRQJ FRVW WKH LU SUF  
VHGGV KHDW LQWR HDFK URRP RI D ZKR\  
,W LV DOUHDG\ VR LQ D IHZ \$PHULFDQ FI  
KRXXHV DQG DOO URZPLF ZLWK KRWD WDWI  
UHJXODWH WKH WHPSHUDWXUH \RX QHHC  
KDYH D EODJLQJ ILUH LQ DQ\ SDUWLFXOC  
VXSSOLHG IRU KHDWLQJ SXUS\$O WIKURP  
ZRUN RI FOHDQLQJ FKLQJ DQG DQDHSQ  
WLPH L<sup>2</sup>WVWGLNHS SHDULQJ  
&DQGOHV ODPSV DQG HYHQ KHM DDYHF  
ZKLFK LWFILVQW WR SUHVV D EXWRQ IR  
LV D VLPSON TXHVWLRQ RI HFRQRP\ DQG  
OX[XU\ RI HOHFWULF COOLRKLW \$PHU LOFDV WWO  
VRFLHWLHV IRU WKH DOPRVW FRPSOHWH  
RQO\ EH QHFHVVDU\ WR FUHDWH D GHSD  
ZRXOG FRPH WR HDFK GRRU DQG WDNH V  
EH ZDVKHG XS WKH OLQHQ WR EH ZDVK  
ZHUH ZRUWK ZKLOH WKH FDUSHWV WR I  
EULQJ EDFN WKH WKLQJV HQWUXVWHG W  
KRWFH IDQG \RXU HJJV GRQH WR D QLFH\  
IDFW WKDW EHWZHHQ WZHOYH DQG WZR  
\$PHULFDQV DQG DV PDQ\ (QJOLVKPHQ ZK  
SRUN SRWDWRHV DQG D VHDVRQDEOH Y  
h ```` ILUHV EXUQ GXULQJ WZR RU WKL  
WKHVH YHJHWDEOHV h ```` ZRPHQ VSF  
ZKLFK WDNLQJ DOO KRXXVHKROG WUHQHUC

3)LIW\ ILUHV EXUQ ' ZURWH DQ \$PZIKHLE  
ZRXOGLFXI' 'LQH DW KRPH DW \RXU RZQ  
OLNH EXW RQO\ WKLQN \RXUVHOI ZK\ V  
ZKROH PRUQLQJ WR SUHSHDQDQ DHVZLPSS\  
ILIW\ ILUHV ZKHQ WZR SHRSOHLBQWVRFH  
WKHVH SLHFHV RI PHDW DQG DOO WKHVH  
PXWWRQ WR EH URDVWBIQDVR\QXWQHYSBH  
WDVWH LI \RX SUIHU D SDUWLFXODU VD  
ILUH DQGLRHU LW DV EHDXLIXOO\ DV \RX  
:K\ KDV ZRPDQIN QHYHU EHHQ RI DQ\ DF  
DUH WKH PRWKHU DQG WKUHH RU IRXU V  
ZKDW SHUWDLQV WR FRRNLQJ" %HFDXVH  
KDYH QRW LQFOXGHG ZRPDQ LQ WKHLU C  
EHQHDWK WKHLU VXSHULRU PDVFXOLQH  
DUUDQJHPHQWV ' ZKLFK WKH\ KDYH<sup>2</sup>SXW  
ZRPDQ

7R HPDQFLSDWH ZRPDQ LV QRW RQO\W  
ODZ FRXUWV RU WKHRSIDWQHDPHQDQFLSB  
DOZD\V WKURZ KHU GRPHVWLR WRDQFRS  
ZRPDQ LV WR IUHH KHU IURP WKH EUXWD  
LV WRQRUH \RXU KRXVHKROG LQ VXFK D Z  
FKLOGUHQ LI VKH EH VR PLQLFLGQZKDOH  
KHU VKDUH RI VRFLDO OLIH

,W ZLOO FRPH \$V ZH KDYH VDLG WKLQ  
IXOO\ XQGHUVWDQG WKDW D UHYROXWLF  
/LEHU(VXDQIRWLGZULQV QRW EH D UHYRO  
VODYHU\ DW KRPH +DOI KXPDLW\ VXEM  
VWLOO KDYH WR UHEHO DJDLQVW WKH R'

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) < ~ ~ \$ € < ~ ~ † ~ ‡ •

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\$FFXVWRPHG DV ZH DUH E\ KHUHGLW\ SU  
DQG WUDLQLQJ WR UHSUHVHQW RXUVHO'  
OHJLVODWLRQ DQG PDJLVWUDF\ HYHU\ZK  
ZRXOG WHDU KLV IHOORZ PDQ WR SLHFH  
KLV H\KLP WKDW DEVROXWH FKDRV ZRX  
RYHUWKURZQ GXULQJ D UHYROXWLRQ \$(  
WKRXVDQGV DQG WKRXVDQGV RI KXPdq .  
IUHHZ\WKRXW DQ\ LQWHUJGDWLVROQLQIUWMP  
VXSHULRU WR WKRVH DFKLHYHG XQGHU .  
, I \RX RSHQ D GDLO\ SDSHU \RX ILQG W  
\*RYHUQPHQW WUDQVDFWLRQVPDQGUWRD  
ZRUOG UHGGLQJ LW ZRXOG EHOLHYH W  
([FKDQJH WUDQVDFWLRQV QRWKLQJ JHV  
PDVWHXU ILQG QRWKLQJ LQ WKH SDSHU DE  
XS DQG GHYHORS ZLWKRXW PLQ\UWVDFURV  
QRWKLQJ (YHQ ZKHUH WKHUH L\DLWKHGDC  
IDYRULWH FROXPQ LQ WKH )UHQFK SDSH  
WKH SROLFH \$ IDPLO\ GUDPD DQ DFW R  
WKH SROLFH KDYH DSSHUHG RQ WKH VF  
ce` `````` (XURSHDQV ORYZRUNKDRWHORL  
LQFRPHV EXW DSDUW IURP OLWHUDWXU  
LJQRUHG E\ QHZVSDSHUV LI \*RYHUQPHQV  
ZD\ RU R\WKHUHYHQ V\H\ZLQKZK\K\W\K\H\DV\  
RI D NLQJ RU RI D SDUOLDPHQW DOO JR  
SROLWFLDQV KDYH EHHQ SUHVHUYHG 3

LQIOXHGFH RQ WKH YR'WDHV RI QD RVLQ JSOHU @  
5R\DO YLVLWV WKH JRRG RU EDG KXPRX  
LQWULJXHV DUH DOO FDUH% XWOZHUKBRH(  
GLLFXOW\ WR UHFRQVWLWXWH D FLW\ RI  
PHFKDQLVP RI WKDW LPPHQVH FRPPHUFH  
+DQVHDWLF FLWLHV RU WR NQRZ KRZ W  
VFKRODU VSHQGV KLV OLIH LQ VWXG\LQJ  
XQNQRZQ DQG SDU@ WDKPHQ WDWKRWKZDHWRFU  
WKH\ RQO\ WUHDW RFRXQHWLSON RWKHFDLU  
DUH WDXJKW LQ VFKRROV

,Q WKLV ZD\ ZH GR QRW HYHQ SHUFHLY  
HYHU\ GD\ E\ VSRQWDQHRXV JURXS RI F  
RI RXU FHQWXU\

: H WKHUHIRUH SURSRVH WR SRLQW RX\  
PDQLIHVWDWLRQV DQG WR VKRZ KRZ PH  
DEVROXWHO\ FODVK DFWLQGFRIQFIRUW F  
RI D YHU\ FRPSOH[ QDWXUH

,W LV HYLGHQW WKEDVHVGSRUHLQGWKBI  
WR VQ SOXQGRUQ D QDUURZ PLQGHG D  
LQGLYLGDVVRRI WKLV NLQG DUH QHFHV  
DOZD\V SHUIHFWO\ IUHH DQG RIWHQ WK

%XW ZKDW FRQFHUQV XV LV QRW WR JL  
IROORZHG DQG ZKSLFKVHQRW HRYFHUW\ FRX  
:KDW ZH KDYH WR GR LV WR VKRZ WKDW  
LQGLYLGXDOLVP ZKLFK VWLIOHV XV WKH  
YHU\ JUHDW SDUW LQ ZKLFK ZH RQO\ DF\  
ZRXOG EH PXFK HDVLHU WKDQ LV XVXDO  
\*RYHUQPHQW

,Q VXSSRUW RI RXU YLHZ ZH KDYH DOUI  
QRZ UHWXUQ WR WKHP

: H NQRZ WKDW (XURSH KDV D V\WHP R  
DQG WKDW RQ WKLV QHWZRUN \RX FDQ G  
HDVW WR ZHVW IUR@ DGGUGRVR&DQDHW  
ZLWKRXW GHOD\V ZLWKRXW HYHQ FKDQ.  
H[SUHVV ORUH WKDQ WKDW D SDUFHO  
DGGUHVHH DQXKHUW LQ @HQUWDO \$VL  
QHHGHG IRU VHQGLQJ LW WKDQ ZULWLQ.



7KLV UHVXOW PLJKW KDYH EHHQ REWDL  
%LVPDUFN RU VRPH SRWHQWDWH KDYLQ  
%HUOLQ RU 5RPH GUDZ D UDLOZD\ PDS  
7KH 5XVWLDQ LFWERUDV RI VXKQKSRZBI  
URXJK GUDIWV RI UDLOZD\V EHWZHHVHLOJR  
DQG GUHZ RQ WKH PDS RI 5XVVD D VWU  
VD\LQJ <sup>3</sup>+HUH LV WKH SODQ ' \$QG WKH I  
LQ GHHS UDYLQHV EXLOGLQJ EULGJHV R  
DEDQGRQH G D IHDZWHIDUWKHDWHDLOZD\ KDC  
...ae` ``` SHU (QJOLVK PLOH

7KLV LV RQXWZDSSLO\ WKLQHWZDSSLOPZ  
ZHUH FRQVWUXFWHG SLHFH E\ SLHFHQW  
KXQGUIHGHLW FRPSDQLHV WR ZKRP WKH  
FDPH WR DQ XQGHUVWDQGLQJ FRQFHUQL  
WUDLQV DQG WKH UXQQQLQJ RI FDUULDJI  
XQORDGLQJ PHUFKDQGLVH DV LW SDVVH'

\$OO WKLV ZDV GRQH E\ IUHH DJUHHPHQ  
SURSRVDOV DQG E\ FRQJUHVHV DW ZKI  
VSHFLILHG VSHFLDO SRLQWV DQG WR FF  
PDNH ODZV \$IWHU WKWFRGHUJZDHW R  
UHVSHFWLYH FRPSDQELXW ZQWK ZLWKGDID  
DFFHSWHG RU UHMHFWHG

2I FRXU\FXGLWLVH ZHUH7KHWHLQHWKHRZ  
ZKR ZRXOG QRW EH FRQYLQFHG %XW D I  
DJUHH LQ WKH HQG ZLWKRXW LQYRNLQJ  
PHPEHUV

7KLV LPPHQVH QHWZRUN RI UDDLOZDVKF  
WULF LW KDV JLYHQ ULVH WR QR GRXEW  
QLQHWHHQWK FHQWXU\ DQG LW LV WKH  
IRUHWROG LW HLJKW\ \HDUV DJR RXU JL  
LGLRWLF RU PDG 7KH\ ZRXOG KDYH VDL  
VKDUHKROGHUV RI D KXQGUHG FRPSDQL  
WDOH \$ FHQWUDO \*RYHUQPHQW DZLWKD

\$QG WKH PRVW LQWHUJHWLWKILQJ W  
(XURSHDQ &HQWUDO \*RYHUQPHQW RI 5DI  
UDLOZD\V QRWLFHWVWDFRQWLQHQWDO  
FRPPLWVHH (YHU\WKLQJ LV GRQH E\ IUH

6R ZH DVN WKH EHOLHYHUV LQ WKH 6W  
ZLWKRXW D FHQWUDO \*RYHUQPHQWLFZH  
DVN WKHP 3%XW KRZ GR (XURSHDQ UDL  
WKH\ FRQWLQXH WR FRQYH\ PLOOLRQV R  
DFURVV D FRQWLQHQW" ,I FRPSDQLHV RZ  
ZK\ VKRXOG UDLOZD\ ZRUNHUV ZKR ZRX  
DJUHH OLNHZLVH" \$JQULV DZK&RPSW DQV DQ  
%HOIRUW FDQ DZLWKR XWDUJRIQQJ WKHPV  
FRPPRQ FRPPRQWKH PLGVW RI RXU VR  
JURXSV RI IUHH ZRUNHUV VKRXOG ZH QI

, ,

:KHQ ZH HQGHYRXU WR SURYH EQM(SPS  
LQLTXLMDQXLYDRMLRQ RI VRFLHW\ DV D ZKR  
EH QRW GLDPHWULFDQO\ RSSRVHG DJUH  
ZH GR QRW LJQRUH WKH REMHFWLRQV W  
\$OO VXFH H[DPSOHV KDYH WKHLU GHIH  
TXRWH DJULQJ DWRUHQ H[HPSW IURP WKH  
VWURQJ WKH SRRU E\ WKH ULFK 7KLV L  
ZLWK WKHLU ZRQWHIG WRKDLW WKH LQWHU  
QHFHVVDU\ WR SXW DQ HQG WR WKLV H[  
2QO\ WKHWIRUK OHVVRQV RI KLVWRU\  
WKH 6WDWH LWVHOI KDV FRQWULEXWHG  
SUROHWDULDQV DQG GHOLYHULQJWKH  
WKDW LW LV SRVVLEOH WR SXW DQ H<sup>2</sup>QG  
SULYDWH FDSLWZOR DQGLSRVHRU VZKLFK DL  
WKH 2FVRQWHLQXH WR H[LVW  
:KHQ ZH VSHDN RI WKH DFFRUG HVWDEC  
ZH H[SHFW WKHP WKH ZRQV KLS DQW RWI  
\RX QRW VHH KRZ WKH UDLOZD\ FRPSDQL  
DQG WKH WUDYHOOHUV 7KH RQO\ ZD\ LV  
SURWHFW WKH ZRUNHUV DQG WKH SXEOL

%XW KDYH ZH QRW VDLG DQG UHSHDWH  
WKHUH DUH FDSLWDOLVWV WKHVH DEXV  
SUHFLVHO\ WKH 6WDWH WKKDWZ R D GLEYH  
FRPSDQLHV WKDW PRQRSRO\ DQG WKRVH  
WRGDDV LW QRW FUHDWHG FRQFHVVLRQ\  
DJDLQVW UDLOZD\PHQ RQ VWULNH" \$QG  
VDZ LW VWLOO LQ 5XVVD KDV LW QRW  
PDJQDWHV DV IDU DV WR IRUELQ WKH 3U  
QRW WR GHSUHFLDWH WKH VKDUHV LW J  
ZKLFK KDV DQDQGHUHQ WKH DQGWKHHG3RQ  
3 / 0 W&K 35 W&K RWKDUG 3WKH NLQJV RI I

7KHUHIRUH LI ZH JLYH DV DQ H[DPSOH  
UDLOZD\ FRPSDQLHV LW LV E\ QR PHDQ\  
PDQDJPHQW QRU HYHQJDQLQJ WDWQR I, W  
LI FDSLWDOLVWV ZLWKRHW DQ\ RWKHU I  
DW RWKHUHQ \$SIRSOH FDQ H[SORLW UDLOZ  
HVWDEOLVKLQJ DQ , QWRUHQ WLRQ DRO ZHS  
DEOH WR GR LW MXVW ZLWKRHW DQGLD  
(XURSHDQ UDLOZD\

\$QRWKHU REMHFWLRQ LV UDLVHGHWPKDV  
WROG WKDW WKH DJUHHPHQW WZHK D SHHYNI  
FRPSDQLHV OD\ GRZQ WKH ODZ WR WKH  
H[DPSOH WKDW D FHUWDMQ SLSLFW\*HHG FED  
FRPSHO WUDYHOOHUV ZKR JR IURP %HUC  
)UDQNIRUW LQVWHDG RI WDNLQJ WKH /H  
FDUULHV JRRGV ac` PLOHV LQ D URXQGD  
LWV LQIOXHQWLDO VKDUHKROGHUV DQG  
6WDWHV WUDYHOOHUV DQG JRRGV DUH V  
FLUFXLWRXV URXWHV VR WKDW GDDUW  
2XU DQVZHU ZLOO EH WKH VDPH \$V OR  
&DSLWDO ZLOO R%SLWH R \$ SWKHV OLHQV IGRH\  
RQO, W LV DOVR RZLQJ WR WKH VXSSRUW  
FUHDWHG E\ WKH 6WDWH HQKRS DQGLHW R  
VPDOO RQH V

7KH HDUO\ (QJOLVK DQG )UHQFK 6RFLD  
(QJOLVK OHJLVODWLRQ GLG DOO LQ LWV  
SHDQDQW WDRG RGHYHOLWYHU RYHU WR ZHDO

EDWWDOLRQV RI PHQ FRPSHOOHG 5WR QZ  
OHJLVODWLRQ GLG H[DFWO\ WKH VDPH (   
ZKLFK UHFHLYHG WKH ,QWHUHQDUWWKQDZ  
LQWR SOD\ WR IRUZDUG WKH LQWHUHVW  
FUHGLWRU WR DOO (XURSHDQ KWV DDLWK  
VXEMHFWV WKH PLQLVWHUV ZLOO GR W  
,Q WKH 8QLWHG 6WDWHV LQ WKH 'HPRF  
DV DQ LGHDO WKH PRVW VFDQGDORXV I  
FRQFHUQV UDLOURDGV 7KXV LI D FRPSI  
LV LV RIWHQ HQDEOHG WR GR VR EHFDX  
WKH 6WDWH 'RUFDPHQDUWUWHQWO\ SXC  
\$PHULFDQ ZKHDW WUDGH KDYH IXOO\ VK  
WKH H[SORLWDWLRQ RI WKH ZHDN E\ WKI  
DFFXPXODWHG FDSLWDO KDV LQFUHDVHG  
6WDWH KHOS 6R WKDW ZKHQ ZH VHH V\  
RI IUHH DJUHHPHQW VXFFHHGLQJ LQ SU  
ELJ RQHV ZH DUH DVWRQLVKHG DW WKH  
KROG LWV RZQ DJDLQVW DOO SRZHUIXO  
,W LV D IDFW WKDW OLWWOH FRSSDQJH  
)UDQFH ODQG RI FHQWUDOL]DWLRQ SZHQ  
DUH PRUH WKDQ aa` LQ \*UHDW %ULWDLQ  
FHUWDLQDQGHJWHRURWKH UDSLQ WUDQ\  
WKH )UHQFK DQG \*HUPDQ FRPSDQLHV  
ORUHRWKDW LV QRWJW&HSLXMDOLRQYR\  
FDQ DQZDW EH WR LWXVIGWKQWVHVHU  
LPSRUWDQFH WR XV LV WKLV 7KH DJUHF  
FRPSDQLHV WR ZKRP WKH UZDZDAW DREQI  
LQWHUYHQWLRQ RI DWRHODWUDQZQRWKHQP  
VRFLHWLHV LW KDV VXEVLVWHG E\ PHDC  
ZKR GLVFXVV DPRQJ WKSFRHODQWZWRQV  
FRQVWLWXHQWV ,W LV DVQHFRZSOHQVLSO  
JRYHUQPHQWDO SULQFLSOH PRQDUFKLF  
SDUOLDPHQWDULDQ ,W LV DQ LQQRYDWI  
FXVWRPV RI (XURSH EXW KDV FRPH WR '

+RZ RIWHQ KDYH ZH QRW UH DG LQ WKH Z  
3:KR WKHQ ZLOO XQGHUWDNHF~~W~~WKHJ)  
VRFLHW\" 6KRXOG LW HQWHU WKH PLQG  
SXW ~~KJLV~~ ~~DEFUUR~~ VV D FDQDO DQG REWUXF  
KLP WR UHDVRQ" '

/HW XV FRQIHVV WKH VXSSRVLWLRQ WR  
VDLG IRU LQVWDQFH 36KRXOG D FHUWD  
ZDQW WR ~~PDJNHV~~ ~~SOMVUE~~ ~~EDRUH~~ RWKHUV W  
FDQDO LQ RUGHU WR FDUU\ VWRQH V ZKI  
ZRXOG KDYH ~~WRRV~~ ~~WDXQ~~ EZRXOGL~~B~~HJX~~ORV~~  
\*RYHUQPHQW" '

%XW UHDO OLIH KDV DJDLQ GHPRQVWUI  
GLVSHQVHG ZLWK KHUH DV HOV~~B~~~~ZK~~~~H~~~~U~~~~M~~~~L~~~~F~~  
UHSODFH WKDW QR[LRXV DQG FRVWO\ V\  
: H NQRZ ZKDW FDQDOV PHDQ WR +R~~ODOO~~  
NQRZ KRZ ~~RKFK~~ ~~WUJH~~ LV RQ WKH FDQDO'  
KLJKURDGV DQG UDLOURDGV LV WUDQVS  
FRXOG ILQG FDXVH WR ILJKW LQ RUGHU  
7KHUH WKH \*RYHUQPHQW PLJKWIL~~U~~~~H~~~~D~~~~Q~~~~O~~~~R~~~~I~~

<HW LW LV QRW VR 7KH 'XWFK VHW~~W~~~~O~~~~R~~~~K~~  
DJR E\ IRXQGLQJ JXLOGV RU V\QGLFDW  
DVVRFLDWLRQV VSUXQJ IURP WKH YHU\  
WKH ERDWV ZDV DGMXVWHG E\ WKH RUGI  
WKH\ KDG WR IROORZ RQH DQRWKHU LQ '  
WKH RWKHUV XQGHU SDLQ RI EHLQJ H[FC  
PRUH WKDQ D FHUWDLQ QXPEHU RI GD\ V\  
QR JRRGV WR FDUU\ GXULQJ WKDW WLPH  
GHSDUW ZLWK~~J~~~~K~~~~L~~~~W~~~~R~~~~H~~~~O~~~~S~~~~D~~~~Y~~~~H~~~~E~~~~D~~~~U~~~~R~~~~P~~ IRU QH.  
WKXV DYRLGHG HYHQ WKRXJK WKH FRPS  
WKH ERDWV FRQ~~W~~~~U~~~~L~~~~D~~ ~~X~~~~H~~~~I~~~~G~~~~H~~~~W~~~~O~~~~R~~~~D~~ ~~W~~~~M~~~~L~~~~H~~~~W~~ VXSSI  
ZRXOG KDYH EHHQ RQO\ WKH PRUH FRUG  
,W LV XQQHFHVVDU\ WR DGG WKDW WKH  
V\QGLFDWH 7KDW ZDV WKHLU EXVLQHVV

ORUHR WKUHVH V\QGLHFD W\HFKRJIUHDW DGYD  
DOVR DORQJ WKVHHV\KLFQ DQGMUKH:IDU DV %  
GLG QRW ZDLW IRU D JUHDW %LVP DUCFN M  
DSSRLZEVUDQDXSW \*HQHQDO 6WDWDDWVXISRC  
+HDG &RXQFLOORU RI WKH \*HQHUDO 6WD  
JROG VWULSHV RQ KLV VOHHYHV FRUHH  
SUHIHUHG FRPLQJ WR DQ LQWHUQDWLR  
VKLSRZQHUV ZKRVH VDLQLQJ YHVHVOV ;  
DV ZHOO DV 5XVVD KDYH DOVR MRLQHC  
WULDF LQ WKH %DOWLF DQG WR EULQJ DE  
FURLVp RI YHVHVOV 7KHVH DVVRFLDUMLR  
YROXQWHHU DGKHUHQWV DQG KDYH QR>  
,W LV KRZHUHWKDW SUREDEOH WKDW K  
OHV\HVEH WKH V\QGLFDWH KDV DOVR D  
HVSHFLDOO\ ZKHUH LW UHFHLYHV WKH S  
GLG QRW IDLO WR LQWHUHUWUHLWZKDWK WWH  
UHSUHVHQW DVVRFLDWRQV ZKRVH PHPE  
DQG WKDW LI DW WKH VDPH WLP\HDKK \  
VRFLDOLJLQJ RI SURGXFWLRQWRRECHORPSJ  
IHGHUWHG &RPPXQHV RU WR D KXQGU  
RI KLV QHHGV WKLQJ\H\ZRXOG SHDFWH \$ GU  
SRZHUIXO RQ VHD ZRXOG IHHO ZHDN RQ  
OHVVHQ WKHLU FODLPV LQ RUGHU WR FR  
RWKHU JURXSV  
\$W DQ\ UDWK ZLWKRXW GLVFXVVLQJ W  
DVVRFLDWRQ WKDW KDV GLVSHQVHG ZL  
H[DPSOHV  
\$V ZH DUH WDONLQJ RI VKLSV DQG ERD  
VSOHQJQJ\DWLRQV WKDW WKH QLQHWHT  
WKRVH ZH PD\ ZLWKWKH\K(VJELSKURIXIGERR  
,W LV NQRZQ WKDW HYHU\ \HDU PRUH W  
VKRUHV RI (QJODQG \$W VHD D JRRG VKL  
FRDVWV WKDW<sup>2</sup>GBQJKUWKUWKVDMQV\KDW\  
WKDW FKHU\RDVWV DQG VDLOV FXUUHQ'  
UHHIV DQG VDQG EDQNV RQ ZKLFK VKH U  
(YHQ LQ ROGHQ WLPHV ZKHQ LW ZDV D  
FRDVWV WR OLJKW ILUHV LQ RUGHU WR I

WKHUBHFDUWKH\ DOZD\ V VWGRYHQRDWDKY  
WKH\ ODXQFKHG WKHLU ERDWV DQG ZHQ  
RQO\ WRR RIWHQ ILQGLQJ D ZDWHU\ JUD  
VHD VKRUH KDV LWV OHJHQQV RI KHURL\  
PDQ WR VDYH FUHZV LQ GLVWUHV

1R GRXEW WKH 6WDWH DQG PHQ RI VFL  
WKH QXPEHU RI FDXDOWLHV /LJKWKRX'  
ZDUQLQJV KDYH GLPLQLXWKHVKWKHFD  
VHYHUDO WKRXVDQG KXPdq OLYHV WR E

7R WKLW HQG D IHZ PHQ RI JRRGZLOO S  
JRRG VDLORUV DQG QDYLJDWRUV WKHPV  
ZHDWKHU D VWRUP ZLWKRXW EHLQJ WRU  
ZRUN WR LQWHUHVW WKH SXEOLF LQ WK  
IRU FRQVWUXFWLQJ ERDWV DQG IRU VW  
WKH\ FRXOG EH RI XVH

7KHVH PHQ QRW EHLQJ -DFRELQV GLG  
XQGHUVWRRG WKDW WR EULQJ WKHLU HC  
WKH FRRSHUDWLRQ WKH HQWKXVLDVP )  
VHOI VDFULILFH RI WKH ORFDO VDLORUV  
DW WKH ILUVW VLJQDO ZRXOG ODXQFK W  
VXHULQJ WKHPVHOYHV WR EH GHWHUUHG  
ILYH VL[ WHQ KRXUV DJDLQVW WKH<sup>2</sup>WLC  
PHQ UHdG\ WR ULVN WKHLU<sup>3</sup>OKHM<sup>4</sup>WRVW  
RI VROLG<sup>5</sup>DL<sup>6</sup>SLW<sup>7</sup>LW RI VDFULILFH QRW WR  
WKHUHIRUH D SHUIHFWO\ VSRQWDQHRXV  
LQGLYLGXDO LQLWLDWLYH +XQGUHGV R  
LQLWLDWRUV KDG WKH FRPPRQ VHQVHV  
VDJDFLW\ LQ WKKH<sup>8</sup>PI<sup>9</sup>WH<sup>10</sup>W<sup>11</sup>PD<sup>12</sup>Q<sup>13</sup>  
YLOODJH RQ WKH FRDvw WR H<sup>14</sup>H<sup>15</sup>F<sup>16</sup>Z<sup>17</sup>D<sup>18</sup>DL<sup>19</sup>  
OHIW WKH FKRLFH RI D VLWH WR WKH OR

ORGHOV RI QHZ ERDWV ZHUH QRW<sup>20</sup>U<sup>21</sup>H<sup>22</sup>E<sup>23</sup>  
5HSRUW RI WKH \$VVRFLDWLRQ<sup>24</sup> \$V LW L'  
KDYH IXOO FRQILGHQFH LQ WKH YHVVO  
SRLQW RI FRQVWUXFWLQJ DQG HTXLSSLQ  
H[SUHVVHG ZLVK ' ,Q FRQVHTXHQFH HYH  
LPSURYH<sup>25</sup>PHQW

7KH ZRUN LV ZKROO\ FRQJGXFLW\HCGJ E\QYR  
DQG ORFDO JURXSV E\ PX2WKXDSQDUKDKQV  
ORUHRWKUH\ DVN QRWKLQJ RI WKH UDWHS  
UHFHLYH ...d` `` LQ VSRQWDQHRXV VXE  
\$V WR WKH UHVXOWV KHUH WKH\ DUH  
OLIHERDWV 7KH VDPH \HDU LW VDYHG f`  
6LQFH LWV IRXQGDWLRQ LW KDV VDYHG  
,Q ahhf WKUHH OLIHERDWV ZLWK DOO V  
KXQGUHGV RI QHZ YROXQWHIDQV]HGWKUH  
ORFDO JURXSV DQG WKH DJLWDWLRQ UF  
DGGLWLRQDO ERDWV \$V ZH SURFHGG O  
VHGGV WR WKH ILVKHUPHQ DQG VDLORU\  
WLPHV OHVV WKDQ WKHLU VDOH SULFH L  
PHWHRURORJLFDO NQRZOHGJH DQG ZDU  
FKDQJHV RI ZHDWKHU SUHGLFWHG E\ PH  
/HW XV UHSHDW WKDW WKHVH KXQGUHG  
RJDQL]HG KLHDDQGF DUFHD DORSRVHG H[FOX  
OLIHERDWPHQ DQG SHRSOH LQWHUHVWF  
ZKLFK LV PRUH RI D FHQWUH IRU FRUUH\  
,W LV WUXH WKDW ZKHQ D YRWLQJ RQ \  
WD[DWLRQ WDNHV SODFH LQ D GLVWULF\  
\$VVRFLDWLRQ GR QRW DV VXF D PVRGNHWV  
ZKLFK XQIRUWXQDWHO\ WKH PHPEHUV RI  
WKH RWKHU KDQG WKHVH EUDYH PHQ GF  
VWRUP WR OHJLVODWH IRU WKHP DERXW  
WKH\ UXVK WR WKHLU ERDWV DQG JR D  
EXW PFK JRRGZLOO  
/HW XV WDNH DQRWKHU VRFLHW\ RI WK  
QDPH PDWWHUV OLWWOH OHW XV H[DPL  
,PDJLQH VRPHERG\ VD\LQJ ILIW\ \HDUV  
PDVVDFULQJ b` `` DPQHQ RIQZB XGG LQJ e` ``  
RI KHOSLQJ LWV RZQ YDFWOLRQJ DRQZ/DHUX  
LQLWLDWLYH PXVW LQWHUYHJQHLDQ G QPM  
IRU WKLW KXPQH ZRUN ` :KDW PRFNHU\  
ZRXOG KDYH GDUHG EWHJLQS ZDW KW KXV ZRX  
8WRSLDQ DQG LI WKDW GLG QRW VLOHQ  
QRQVHGXUH YROXQWHHUV ZLOO EH IRXQG



PRVW QHHGHG \RXU YROXQWHHU KRVSL\  
ZKLOH HYHU\WKLQJ ZLOO EH ZDQWLQJ LC  
IRJUH WKH QDWLRQDO ULYDOULHV ZKLFK  
DQ\ KHOS ' 6XFK GLVKH DUWHQLQJ UHPDL  
WKH QXPEHU RI VSHDNHUV :KR RI XV KD  
VWUDLQ"

1RZ ZH NQRZ ZKDW KDSSHQHUJG Q5LH B G& WF  
IUHHH\YHU\ZKHUH LQ DOO FRXQWULHV L  
ZDU R~~haa~~ E~~g~~ RNH RXW WKH YROXQWHHUV  
RIIHUHG WKHLU VHUYLFHV 7KRXVDQGV RI  
R~~JD~~QLJHG WUDLQV ZHUH VWDUWHG FDUL  
PHGLFDPHQWV IRU WKH ZRXQGHG 7KH (C  
RI IRRG FORWKLQJ ~~WH~~ ~~DR~~ ~~OW~~ ~~V~~ ~~JU~~ ~~DL~~ ~~QD~~ ~~W~~ ~~RK~~ ~~V~~  
ZLWK WKHLU DWWHQGDQWV WR KHOS LQ  
ZDU 2QO\ ~~DR~~ ~~OW~~ ~~X~~ ~~DR~~ ~~VE~~ ~~JH~~ \*XVWDYHDCRG QIRXUZ  
UHDOO\ VWUXFN E\ WKH LPPHQVLW\ RI W  
\$V WR WKH SURSKHWV HY~~WUF~~ ~~B~~ ~~M~~ ~~D~~ ~~G~~ ~~J~~ ~~H~~ ~~W~~ ~~R~~  
DQG LQWHOOLJHQFH DQG EHOLHYLQJ WI  
UXOLQJ WKH ZRUOG ZLWK D URG QRQH F  
GHYRWLRQ RI WKH 5HG &URVV YROXQWH  
WRR HDJHU WR RFFXS\ WKH PRVW GDQJH  
GRFWRUV RI WKH 1DSROHRQZKH~~6Q~~ ~~D~~ ~~W~~ ~~H~~ ~~BC~~  
DSSURDFKHG WKH 5HG &URVV YROXQWH  
HGGXULQJ WKH EUXW ~~DQ~~ ~~GW~~ ~~LD~~ ~~NS~~ ~~RL~~ ~~TH~~ ~~W~~ ~~Q~~ ~~V~~ ~~FO~~ ~~DC~~  
WKHLU FDUH RQ WKH ZRXQGHG RI DOO Q  
%HOJLDQV HYHQ -DSDQHVH DQG &KLQHV  
GLVWULEXWHG WKHLU KRVSLWDOV DQG V  
WKH RFFDVLRQ 7KH\ YLHG ZLWK RQH DQ  
KRVSLWDOV \$QG WKHUH LV PDQ\ D )UHQ  
JUDWLWXGH RI WKH WHQGHU FDUH KH UF  
YROXQWHHUV LQ WKH 5HG &URVV DPEXO  
DXWKRULWDULDQ" +LV LG~~M~~ ~~DO~~ ~~D~~ ~~U~~ ~~L~~ ~~W~~ ~~C~~ ~~H~~ ~~E~~ ~~U~~ ~~H~~  
GRHV KH FDUH IRU WKH 5HG &URVV DQG  
QRW IXQFWLRQDULHV

+HUH LV ~~W~~ ~~R~~ ~~R~~ ~~Q~~ ~~D~~ ~~Q~~ ~~L~~ ~~R~~ ~~Q~~ VSUXQDQGS ZKWF  
LVV PHPEHUV E\ KXQGUHGV RI WKRXVDQ

WUDLQV HODERUDWHV QHZ SURFHVVHV  
WR WKH VSRQWDQHRXV LQLWLDWLYH RI  
3HUKDSV ZH VKDOO EH WROG WKDW WK  
RJDQLJDWLRQV WHV KDYH ODLG KDQGV I  
FRPPLWWHHV DUH SUHVLGHG RYHU E\ W  
EORRG (PSHURUV DQG TXHHQV ODYLVKO  
LW LV QRW WR WKLV SDWURDQDLJH WLVKDL  
WKH WKRXVDQG ORFDO FRPPLWWHHV RI  
WR WKH GHYRWLRQ RI DOO WKRVH \$QGRW  
GHYRWLRQ ZRXOG EH IDU JUHDWHU LI WI  
, Q DQ\ FDVH LW ZDV QRW E\ WKH RUGH  
&RPPLWWHH WKDW (QJOLVKPHQ DQG -DS  
WKHPVHOYHV WR VHQG KHOS WR WKH ZR  
LQWHUQDWLRQDO PLQLVWU\ WKDW KRVS  
DPEXODQFHV ZHUH FDUULHG RQ WR WKH  
YROXQWHHUV IURP FIDFRKFRK WSRW WK  
DQRWKHU E\ WKH KDLU DV ZDV IRUHVHH  
VHW WR ZRUN ZLWKRXW GLVWLQFWLRQ R  
: H PD\ UHJUHW WLVKDLW VFKR XOBDEH HIXV  
EDG D FDXVH DQG ZH PD\ DVN RIXOJ HOK  
ZRXQGV LI \RX DUH WR KHDO WKHP DIWH  
SRZHU RI FDSLWDOLVW DQG ZRGGNOMRFX  
PDVDFUHV FDOOHG ZDUV DQG ZH ZRXO  
YROXQWHHUV SXW IRUWK WKHLU DFWLYL  
ZDU EXW ZH KDG WR PHDQWLJH WLVKDLV  
LOOXVUDWLRQ RI UHVXOWV SURGXFHG  
, I ZH ZLVKHG WR PXOWLSO\ H[DPSOHV V  
PHQ ZH VKRXOG IQFHYWURHTXG WLVKDLW  
WKH \*HUPDQ DUP\ RZHV LWV IRUFH WKD  
LV JHQHUDOO\ EHOLHYHG , PHDQ WKH V  
PLOWDU\ NQRZOHGJH  
\$W RQH RI WKH ODVW FRQJUHVVHJH BEX  
GHOHJDWHV IURP b deb IHGHUWHG VRFI  
SUHVHQW %XW WKHUH DUH EHVLGHV YH  
6WUDWHJLFRORJDORJLDO &WLVKDLVHVDORFI  
ZRUNVKRSV LQ ZKLFK WKH WHFKQLFDO N  
GHYHORSHG QRW LQ UHJLPHQWDO VFKR

RI VRFLHWLHV LQFOXGLQJ PLOLWDU\ PH  
J\|PQDVWV VSRUWVPHQ DQG WHFKQRORJ  
RJDQLJH IHGHUUDWH GLVFXV,W DQG WKHSVQ  
DQG IUHH DVVRFLDWLRQV WKDW JR WR P  
DUP\

7KHLU DLP LV H[HFUDEOH ,W LV WKH P  
FRQFHUQV XV LV WR SRLQW]DQW]DQW]DQW]  
3\*UHDW 0LVVLRQ RI WKH 6WDWH ' VXFFH'  
PRUH LW LV OHIW WR WKH IUHH DJUHHPT  
LQGLYLGXDOV

(YHQ LQ PDWWHUUV SHUHDLOHQBHQWV ZDM  
WR IXUWKHU SURYH RXU DRONQW]DQW]DQW]  
&RUSV RI 6ZLW]HUODQG ZKR VWXG\ LQ G  
\$HURSODQH &RUSV RI )UDQFH WKH c````  
1DWLRQDO \$UWLOOHU\ \$VQRFZLDQ]LFRQUDV  
RJDQLJDWLRQ IRU WKH GRDQW]DQW]DQW]  
PDGH WR WKH FRPPHUFDO IOHHW WKH  
RJDQLJDWLRQV RI SULDYDWH PRWRUFDUV

(YHU\ZKHUH WKH 6WDWH LV DEGLFDWLC  
SULDYDWH LQGLYLGXDO]DQW]DQW]DQW]  
\$QG \HW WKH IDFVV ZH KDYH TXRWHG J  
JRYHUQPHQW KDV LQ VWRUH IRU XV LQ V  
6WDWH

;  
2{f~|•,^‡œ

/HW XV QRZ H[DPLQH WKH SULQFLSDO RE  
ORVW RI WKHP DUH HYLGHQWO\ FDXVHG  
UDLVH LPSRUWDQW TXHVWLRQV DQG PHU  
,W LV QRW IRU XV WR DQVZHU WKH REM  
&RPPXQLM PRXUVHOYHV KROG ZLWK WKHP  
VXHUHGH WRR PXFK LQ WKH ORQJ KDUG V  
LQGLYLGXDO WR GLVRZQ WKHLU SDVW Z  
ZRXOG PDNH LWVHOI IHOW LQW@HINP@  
\*RYHUQPHQW KDG QR RWKHU DLP WK@O  
DXWKRULWDULDQ 6RFLDOLVW VRFLHW\ H  
QRW ODVW JHQHUDO GLVFRQWHQW Z@O  
LWVHOI RQ SULQFLSOHV RI OLEHUW\  
,W LV RI DQ \$QDUFKLW &RPPXQLW VR  
WKDW UHFRJQL]HV WKH DEVROXWH OLEH  
DQ\ DXWKRULW\ PDNHV XVH RI QR FRPSXOVI  
/LPLWLQJ RXU VWXGLHV WR WKH HFRQRP  
D VRFHFRW SRVHG RI PHQ DQHWKHD UHHW@  
QHLWKHU PRUH QRU OHVV LQGXVWULRXV  
GHYHORSPHQW

7KH REMHFWLRQ LV NQRZQ <sup>3</sup>,I WKH H[L  
QHFHVVLW\ RI HDUQLQJ ZDJHV GRHV QRV  
ZRUN (YHU\ PDQ ZLOO OD\ WKH EXUGHQ  
IRUFHG WR GR LW KLPVHOI /HW XV ILU\  
WKLW REMHFWLRQ LV UDLVHG ZLWKRXW  
E\ WKLW REMHFWLRQ RQVWPHURQHWRZ

HHHFWLYHO\ REWDLQ E\ ZDJH ZRUN WKH  
DQG RQ WKH RWKHU KDQG ZKHWKHU YR  
SURGXFWLYH WKDQ ZRUN VWLPXODWHG I  
ZLWK SUB~~NOG~~\UHTXLUH%DXWHZKIRXMDWWLX  
PHQ JLYH WKHLU RSLQLRQ RQ VXEMHFW  
FRPSOLFDWHG DIWHU VHULRXV UHVHDF  
IDP~~WQ~~ WKLW TXHVWLRQ WKH\ ZLOO SURQ  
UHVWLQJ VDWLVILHG ZLWK DQ\ RQH SDU'  
ZDQW RI VXFFHVV RI VRPH FRPPXQLVW D  
WKH EDUULVWHU ZKR GRHV QRW VHH LQ  
UHSUHVHQWDWLYH RI D FDXVH RU DQ R:  
QXLV~~DOF~~ BGYHUVDU\ LQ DQ RUDWRULFDO  
WR ILQG D UHSDUWHH GRHV QRW RWKHL  
VWXG\ RI WKLW HVVHQWLDQ ~~W~~ BMLWWRXIGD Q  
IDYRXUDEOH FRQGLWLRQ~~HD~~ MRHUVL YLPRJX Q  
S~~R~~GXFVW ZLWK WKH OH~~D~~V~~Q~~RZ~~H~~V~~Q~~WRWR D~~C~~X  
HLWKHU OLPLW WKHPVHOYHV WR UHSHDV  
SUHWHQG LJQRUDQFH RI RXU DVVHUVLR  
:KDW LV PRVW VWULNLQJ LQ WKLW OHYI  
(FRQRP\ \RX DOUHDG\ ILQG D IHZ ZULWHI  
D[LRP SXW IRUWK E\ WKH IRXQGHUV RI W  
PD~~Q~~ TEHVW VWLPXODQW IRU SURGXFWLYH  
SURGXFWL~~FR~~ DO~~FF~~UW~~LV~~DO~~HO~~U~~PR~~Q~~X~~VFHG ZI  
PXFQ QHJOHFWH~~DO~~GSZWL~~DO~~QLR~~X~~W EH PRI  
SHUVRQDO JDLQ 7KH LQIHULRU TXDOLW\  
KXPDQJH~~Q~~UPRGHUQ DJULFXOWX~~W~~K~~H~~D~~H~~Q~~G~~  
JURZLQJ TXDQWLW\ RI SOHDVXUH VHHNH  
VKRXOGHUV WKH DEVHQFH RI D FHUWDL  
PRUH DQG PRUH DSSDUHQW DOO WKLW L  
RI WKH <sup>3</sup>FODVVLFDO' VFKRRO 6RPH RI W  
RQ WKH ZURQJ WUDFN LI WKH LPDJLQDU  
WHPSWHG H[FOXVLYHO\ E\ D EDLW RI OX  
SHQHWUDWHV HYHQ LQWR XQLYHUVLWLH  
%XW WKLW GRHV QRW SUHYHQW D JUHD  
UHPDLQLQJ SDUWLVDQV RI LQGLYLGXDO  
FLWDGHO RI ZDJHGRP QRWZLWKVWDQGL  
VWRQH WR WKH DVVDLQDQWV E\ LWV IRU

7KH\ IHDU WKDW ZLWKRXW FRPSXOVLRC  
%XW GXULQJ RXU RZQ OLIHWLPH KDYH  
WZLFH" 2QFH E\ WKH DQWL DEROLWLRQL  
RI WKH 1HJURHV DQG IRU D VHFRQG WL  
OLEHUDWLRQ ~~RWWRXHW~~ "ZK:LS WKH 1H  
DQWL DEROLWLRQLVW<sup>3</sup> ~~VXSHUIRPL~~ ~~WKHL~~  
WKH ILHOGV XQFXOWLYDWHG ' VDLG WKH  
WKH )UHQFK QREOHPHQ LQ aghi WKH UH  
ROG DV WKH ZRUOG DQG ZH VKDOO KHD  
VZHSLQJ DZD\ DQ LQMXVWLFH \$QG HDF  
OLEHUDWHG SHDVDQW RI agib\ ~~SQNRZHG~~  
DQFHVWRUV WKH HPDQFLSDWHG 1HJUR  
5XVVLQJ SHDVDQW DIWHU KDYLQJ KRQR  
E\ FHOHEUDWLQJ )ULGD\ DV ZHOO DV 6)  
HDJHUQHVV SURSRUWLRQDWH WR WKH FI  
WKH VRLO LV KLV KH ZRUNV GHVSHUDW  
DEROLWLRQLVW UHIUDLQ FDQ EH RI YDO  
WKHPVHOYHV WKH\ NQRZ ZKDW LW LV ZI  
ORUHR ~~ZKB~~ EXW WKH HFRQRPLVWV WKH  
ZDJH ~~HPDQFLSDWH~~ LV YHURIQW ~~QDLQ~~ ~~GO~~ WHQV  
ZRUN LV RQO\ REWDLQHG IURP D PDQ ZK  
SURSRUWLIRQWR" ~~SDOH~~ \PQV VXQJ LQ KR  
EH UHGXFHG WR WKLV D[LRP  
)RU LW LV UHPDUNDEOH WKDW ZKHQ HF  
EOHVVLQJV ~~RIKSRXSHUWZ~~ DQ XQS ~~BRGXFR~~  
FORWKHG ZLWK ULFK KDUYHVWV ZKHQ  
QRZLVH SURYH WKHLU WKHVLV% ~~LQ~~ ~~GPYR~~  
RQO\ JXDUDQWHH QRW WR EH UREEHG RI  
LQVWUXPHQ ~~VWLRK~~ ~~QVWR~~ ~~HF~~ RQRPLVWV R  
UHDOO\ SURGXFHV PRVW ZKHQ KH ZRUNV  
FKRLFH LQ KLV RFFXSDWLRQV ZKHQ KH  
ODV ~~WIKH~~ KH VHHV KLV ZRUN EULQJLQJ L  
ZRUN OLNH KLP EXW EULQJLQJ LQ OLWW  
IURP ~~WJXPHUQD~~ WLRQ DQG WKLV LV ZKD'  
\$V WR WKH IRUP RI SRVVHVLRQ ~~QRH~~ ~~WKI~~  
RQO\ PHQ ~~WR~~ ~~OL~~ WKHLU GHPRQVUDWLR  
FXOWLYDWRU WKDW KH VKDOO QRW EH U

LPSURYHPHQWV %HVLGHV LQ VXSLSRYUDW  
SISHDWDLQVW DOOSR WKH WLRQD G RIRW W  
GHPRQVWUDWH WKDW XQGHU WKH IRUP F  
VXFK ULFK KDUYHVWV DV ZKHQ WKH SRV  
SURYH LQ IDFW LW LV WKH FRQWUDU\ V  
7DNH IRU H[DPSOH D FRPPXQH LQ WKKH E  
ZKHQ DOO WKH PHQ RI WKH YLOODJH JR  
WR WKHP DOO ,W LV SUHFLVHO\ GXULQJ  
DUGRXU IRU ZRUN DQG WKH PRVW FRQVH  
DSSDUHQW 1R VORUDWHG O DSEURLXUDWH RZ  
FRPSDULVRQ ZLWK LW  
2U OHW XV WDNH D 5XVVLDQ YLOODJH  
EHORQJLQJ WR WKH FRPPXQH RU IDUPH  
FDQURGXFH ZKHQ KH ZRUNV LQ FRPPRQ  
&RPUDGHV YLH ZLWK RQH DQRWKHU LQ F  
WKHPVHOYHV LQ WKHLU ZDNH VR DV QRV  
IHWLYDO IRQ ODERKUD KXQGUHG SHRSOH  
ZRUN WKDW ZRXOG QRW KDYH EHHQ ILQL  
VHSDUDWDO PLVHUDEOH FRQWUDWHG FER  
ZRUN RI WKH LVRODWHG RZQHU  
,Q IDFW ZH PLJKW TXRWH VFRUHV RI H  
\$PHULFD LQ 6ZLVV \*HUPDQ 5XVVLDQ D  
ZRUN GRQH LQ 5XVVLD E\ JDQJV DUWHO  
ILVKH WLFZKR XQGHUWDNH D WDVN DQG C  
UHPXQH UDWRQ DPRQJ WKHPVHOYHV ZLV  
RI PLGGOHPHQ RU HOVH WKH DPRXQW R  
VKLS\DUGV ZKHQ WKH UHPXQH UDWRQ FZ  
DOVR PHQWRQ WKH JUHDW FRPPXQDO K  
QXPEHU RI VXFFHVVIXO FROOHFWLYH HQ  
VKRZ WKH XQTXHVWLRQDEOH VXSHULRUL  
WKH ZDJH HDUQHU RU WKH LVRODWHG SI  
: HOO WKKDW LVWKR VDWLVIDFWLRQ RI S  
QHHGV KDV DOZDV EHHQ WKH PRVW SR  
KLUHOLQJ KDUGO\ VXFFHHGV WR SURGXW  
IUHH ZRZKHU HHV HDVH DQG OX[XU\ LQFL  
SURSRUWLROWR KISHGV LQILQDQG LQM  
DQG REWDLQV SURGXFWV LQ D IDU JUHD

PLVH WKH RWKHU KRSHV IRU HDVH DQG O  
ZKROH VHFUHW 7KHUHIRUH D VRFLHW\ D  
SRVVLELOLW\ RI DOO HQMR\LQJ OLIH LQ  
ZRUN ZKLFK ZLOO EH LQILQLWHO\ VXSHU  
SURGXFHG XS WLOO QRZ XQHU GRPKRURZ

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1RZDGD\V ZKRHYHU FDQ ORDG RQ RWKH  
H[LVWHQFH GRHV VR DQG LW LV EHOLHY  
1RZ ZRUN LQGLVSHQVDEOH WR H[HVWDC  
DUWLWVW RU VFLHQWLWV EXW QRQH R  
PDQXDZRUHNG FORWKHV URDVSFKKBU  
KRZHYHU KLJKO\ DUWLWVLF RU KRZHYHU  
WKH\ DOO GHSHQG \$QGPDVLDVOSOBVRKHUE  
RI OWKIDW HYHU\RQH WULHV WR DYRLG  
: H XQGHUVWDQG SHUIHFWO\ ZHOO WKD  
%HFDXVH WR GR PDQDQD ZRUNDQZV\  
WHQ RU WZHOYH KRXUV D GD\ LQ DQ XQK  
WR WKH VDPH WDVN IRU WZHQW\ RU WKL  
,W PHDQV WR EH GRRPHG WR D SDOWU\  
WR ZDQW RI ZRUN RIWHQ WR GHVWLWXV  
KRVSLWDO DIWHU KDYLQJ ZRUNHG IRUW  
RWKHUV WKDQ \RXUVHOI DQG \RXU FKLO\  
,W PHDQV WR EHDU WKH VWDPS RI LQIH  
WKH SROLWFLDQV WHOO XV WKH PDQXI  
WKH EUDLQZRUWURQH ZKR KDV WRLOH  
QRW WKH WLPH DQG VWLOO OHVV WKH F  
VFLHQFH DQG DUW QRU HYHQ WR SUHSD  
FRQWHQW ZLWK WKH FUXPEV IURP WKH V  
: H XQGHUVWDQG WKDW XQGHU WKHVH  
FXUVH RI IDWH



: H XQGHUVWDQG WKDW D~~OCK~~ D~~WQR~~ K~~D~~ PHH  
RU HQDEOLQJ WKH~~HUI~~ B~~R~~ POW~~G~~ K~~IL~~Q L~~Q~~RH~~H~~E~~R~~  
WKHPVHOYHV DQ <sup>3</sup>LQGHSHQGHQ<sup>2</sup>WR S~~DR~~ML~~R~~  
RWKHV ~~ZRQ~~ ~~¶~~

\$V ORQJ DV WKHUH ZLOO EH D FODVV R  
ZRUNHUV EODFN KDQGV DQG ZKLWH KDC

:KDW LQWHUHVW LQ IDFW FDQ WKLVZ~~G~~  
KH NQRZV WKDW WKH IDWH DZDLWLQJ KL  
OLYH LQ P~~H~~S~~R~~L~~H~~U~~Q~~W~~L~~Q~~V~~H~~F~~X~~U~~L~~W~~\ RI WKH  
ZH VHH WKH LPPHQVH PDMRULW\ RI PHQ  
PRUQLQJ ZH IHHO VXUSULVHG DW WKHLI  
WKH KDELW WKDW HQDEOHV WKHP OLNH  
JLYHQ WR OHDG WKLW OLIH RI PLVHU\ ZI  
IRUHVHHLQJ HYHU VR YDJ~~R~~H~~O~~D~~W~~ K~~D~~W~~V~~WR~~I~~  
EH SDUW RI D KXPDLW\ ULFK LQ DOO WI  
HQMR\PHQWV RI NQRZOHGJH VFLHQWLIL  
D IHZ SULYLOHJHG IDYRXULWHV

,W LV SUHFLVHO\ WR SXW DQ HQG WR V  
ZRUN WKDW ZH ZDQW WR DEROLVK ZDJHC  
7KHQ ZRUN ZLOO QR ORQJHU DSSHU D F  
VKRX~~O~~V~~K~~E~~H~~I~~U~~H~~H~~ H~~D~~W~~K~~H~~M~~E~~F~~X~~I~~O~~W~~L~~H~~V RI PE

ORUHR~~Y~~M~~U~~L~~V~~ W~~L~~P~~H~~ W~~R~~ V~~X~~E~~P~~L~~W~~ W~~R~~ D V~~H~~  
VXSHULRU ZRUN VXSSRVHG WR EH REWD

,W ZRXO~~I~~G~~F~~L~~H~~Q~~W~~I W~~R~~ Y~~L~~V~~L~~W Q~~R~~W W~~K~~H F  
ZH ILQG QRZ DQG DJDLQ EXW D QXPEHU  
WKH LPPHQVH ZDV~~J~~W~~H~~R~~D~~W~~X~~P~~D~~O~~U~~B~~Q~~W~~H~~U~~D~~J  
RQH IDFWRU\ PRUH ~~R~~D~~Q~~O~~H~~V~~G~~ W~~K~~H~~U~~R~~H~~Q~~D~~O~~K~~  
ZKLFK ZD~~W~~O~~H~~E~~B~~L~~W~~ K~~R~~X~~W~~ DQ\ PRUH VXEV'

SHUKDSV EULQJLQJ LQ D IHZ SRXQGV PR

+HUH \RX VHH \RXWKV IURP WZHQW\ WR  
GD\ ORQJ RQ D EHQFK WKHLU FKHVVV V  
DQG ERGLHV WR WLH ZLWK WKH VSHHG  
VFUDSV RI FRWRQ WKH UHIXVH RI WKH  
WUHPEOLQJ DQG ULFNHW\ ERGLHV EHTXF  
VR OLWWOH UR~~P~~Q~~G~~H~~D~~K~~K~~ R~~D~~F~~W~~K~~H~~A EULQ  
HYHU\ ~~Z~~L~~O~~O V~~D~~\ W~~K~~H H~~P~~S~~O~~R\H~~U~~

,Q DQ LPPHQVH /RQGRQ IDFWRU\ ZH VD:  
F DUU\LQJ WUD\ V RI PDWFKHV RQ WKH WKH  
WKH VLP SOHVW PDFKLQH FRXOG ZKH HO \  
VR OLWWOH WKH ZRUN RI ZRPHQ ZKR KD  
D PDFKLQH" :KHQ WKHVH FDQ GR QR PRU  
DUH VR PDQ\ RI WKHP LQ WKH VWUHHW '  
2Q WKH VWHSV RI D PDQVLRQ RQ DQ LF  
DVOHHS ZLWK LWV EX @GFKL @G SODSERUWU L  
WKDW LW PD\ EH ZHOO HPSOR\HG HYHU\  
SDSHUV RI ZKLFK WKH SRRUR @RD \$HQ@U  
\$QG FRQWLQXDOO\ LQ DOO ELJ FLWLHV \  
ZKR KDYH EHHQ RXW RI ZRUN IRU PRQWK  
WKH RYHUKHDWHG YDSRXUV RIIWKHQZRWI  
DUH ILOOLQJ EODFNLQJ SRWV E\ KDQG F  
RXJKW WR KDYH OHDUQHG D WUDGH LQ  
DQG DW WKH DJH RI HLJKWHHQ RU WZHQ  
\$QG VR LW LV HYHU\ZKHUH IURD PQGDQJ RI  
1DSOHV WR 6WRFNKROP JKHVZVYKWHGRVW  
SUHGRPLQDQW WUDQW RW R RPHQ QGRQWU  
PRUH FRORVVDO SURSRUWLRQV  
:KDW D VDG VDWLUH (FRORVWY@DQPW R 3V  
ZDVWH DQ @G@HJ WKH V\ VWHP RI ZDJHGF  
7KLV LV QRW DOO ,I \RX VSHU@DQ WJ R GVIK  
ZLOO QDLYHO\ H[SODIL@X@RV \@R Z@K@DW LW  
YLJRURXVJH@D@G F@ZRHUN PDQ ZKR ZRUNV ZI  
PDQ SUHVHQW KLPVHOI DPRQJ WKH WZH@  
DVNLQJ XV IRU ZRUN KH LV VXUH WR EH  
QXPEHU RI R@UUK@D@G@L]H KLP DW WKH IL  
DFFHSWHG HYHQ WKRXJK ZH KDYH WR JI  
WKH QH\@V@G@DWKH RQH ZKR KDV MXVW UH  
WKR VH ZKR ZLOO UH@FH WYH ULWL QM R @R H UVR @  
DUP\ RI F@ZRSU@N@P@D@Q R X@V@KRI @Z@B@H@R@QO\ FDO@  
WKH EHQFK ZKHQ WKHUH LV SUHV VXUH R  
RW@K@W@M DYHUDJH ZRUNHUV ZKR @D@B@WH@  
DV VRRQ DV EXVLQHVV LV VODFNHQHG" 7  
DJHG D@Q@G@U@H@Q@W IZRUNHUV ZKR FRQWLQXD  
FODVV I@D@F@K@R@R@U@H@L@Z@K  
LFLK EDUHO\ FRYHU WK

ZD\ LQ WKH ZRUOG E\ WULFNHUI\DOGGHWS\ WKH FRQVXPHU LQ GLVWDQW FRXQWULH\ \$QG LI \RX WDON WR WKH ZRUNPHQ WKI UXOH LQ VXF~~QHD~~FW~~WR~~GR~~L~~RXU<sup>2</sup>~~FK~~~~RG~~<sup>3</sup> ZRUN ' WKLV LV WKH DGYLFH ZKLFK WKH FRPUDGHV XSRQ HQWHULQJ VXFK D IDFW )RU WKH ZRUNHUV NQRZ WKDW LI LQ D WKH HQWUHDWLHV RI DQ HPSOR\HU DQG FDUU\ RXW D S~~WK~~~~V~~~~L~~~~Q~~HUR~~GH~~UZRUN ZLOO D UXOH LQ WKH VFDOH RI ZDJHV 7KHUHI WR SURGXFH DV PXFK DV WKH\ FDQ ,Q F VR DV WR NHHS XS KLJK SULFHV DQG'VR JLYHQ ZKLFK VLJQLILHV <sup>3</sup>%DG ZRUN IRU : DJH ZRUN LV VHUI ZRUN LW FDQQRW SURGXFH \$QG LW LV KLJK WLPH WR GLV ZDJHGRP DV WKH EHVW LQFHQWLYH WR S EULQJV LQ D KXQGUHG WLPHV PRUH WKD LV GXH WR WKH VXGGHQ DZDNHQLQJ RI S WKH HQG RI ODVW FHQW~~DU~~L~~J~~OR~~WL~~WOR~~WL~~ VSL~~M~~HW~~K~~D~~WL~~RU~~L~~RQ

, , ,

7KRVH ZKR KDYH VHULRXVO\ VWXGLHG W DGYDQWDJHV RI &RPPXQLVP RQ FRQGLW &RPPXQLVP EH SHUIHFWS~~Q~~DU~~F~~H~~L~~W~~W~~D~~W~~K~~E~~ ZRUN SDLG ZL~~W~~K~~H~~~~Q~~RG~~L~~V~~X~~L~~V~~H~~G~~ XQGHU WI WRRUNHUV<sup>1</sup> DVVRFLDWLRQV JRYHUQHGE FKDUDFWHULVWLFV RI ZDJHGRP DQG ZRX WKDW WKH ZKROH VIM~~W~~H~~E~~R~~Z~~R~~K~~W~~G~~H~~V~~R~~Q~~L SRVVHVVL~~R~~Q RI WKH LQVWUXPHQWV RI S DQ <sup>3</sup>LQWHJUDO' FRPSOHWH HGXFDWLRQ . KDELWV RI FLYLOLJHG VRFLHWLHV ZLWK

RFFXSDWLRQV DQG WKH DWWUDFWLRQV  
DOO D &RPPXQLVW VRFLHW\ ZRXOG QRW  
VRRQ PDNH WKH IHUWLWLW\ RI WKH VRLC  
WR LQGXVWU\

7KLV RXU RSSRQHQWV DJUWHKHW ~~ZIDQ~~ XFW  
WKDW PLQRULW\ RI ORDIHUV ZKR ZLOO Q  
LQ VSLWH RI WKH H[FHOHQW FRQG LRVGLR  
WKH SURVSHFW RI KXQJHU FRPSHOV WKH  
RWKHUV 7KH RQH ZKR GRHV QRW DUULY  
VKHHISLVXV WR FRQWDPLQDWH WKH ZKRO  
UHIUDFWRU\ ZRUNPHQ ZRXOG OHDG WKH  
GLVRUGHU DQG UHEHOOLRQ LQWR WKH Z  
VR WKDW LQ WKH HQG ZH VKRXOG KDYH  
ZRXOG IRUFH VXFK ULQJOHDGHU, W ~~QDRFW~~ M  
V\VVHP RI ZDJHV SDLG LQ SURSRUWLRQ  
HQDEOHV FRPSXOVLRQ WR EH HPSOR\HG  
LQGSHQGQHFH RI WKH ZRUNHU" \$OO RW  
LQWHUYHQWLRQ RI DQ DXWKRULW\ WKDW  
EHOLHYH LV WKH REMHFWRQ IDLUO\ VV

7R EHJLQ ZLWK VXFK DQ REMHFWRQ ~~XPQ~~  
ZKLFK WU\ WR MXVWL\ ~~WKKH6~~ ~~WGW~~ ~~DQK~~  
3\$V WKHUH DUH SHRS ~~ZHK~~ RDZ ~~LHO~~ ~~Q~~ ~~R~~ ~~W~~ ~~LQ~~  
FXVWRPV WKH DX<sup>3</sup> ~~WIK~~ ~~RUKLWD~~ ~~DDQ~~ ~~W~~ ~~D~~ ~~LQ~~ P  
DQG SULVRQV DOWKRXXJK WKHVH LQVWL'  
NLQGV

7KHUHIRUH ZH FDQ RQO\ UHSHDW ZKDW  
DXWKRULW\ ~~RQDJHQ~~ ~~UD~~ ~~S~~ ~~R~~ ~~V~~ ~~L~~ ~~E~~ ~~O~~ ~~H~~ ~~H~~ ~~Y~~ ~~L~~ ~~O~~ \  
ZKLFK LQ WKHPVHOYHV DUH D JUHDWHU  
DEXVHV WKDW (RX) ~~Z~~ ~~L~~ ~~V~~ ~~K~~ ~~Q~~ ~~R~~ ~~R~~ ~~W~~ ~~U~~ ~~W~~ ~~R~~ ~~H~~ ~~D~~ ~~G~~ ~~A~~ ~~L~~ ~~W~~ ~~L~~  
LPSRVLELOLW\ RI OLYLQJ RWKHU ~~ZZKLVFK~~ ~~V~~  
FUHDWHG WKH SUHVHQW &DSLWDOLVW V  
%HVLGHV WKLV ZD\ RI UHDVRQLQJ LV PH  
HYLOV RI WKH ~~D~~ ~~J~~ ~~H~~ ~~V~~ ~~G~~ ~~R~~ ~~P~~ ~~V~~ ~~D~~ ~~Q~~ ~~W~~ ~~H~~ ~~L~~ ~~V~~ ~~X~~ ~~W~~ ~~H~~ ~~G~~ ~~V~~  
GLVDGYDQWDJHV RI &RPPXQLVP LWV RU  
RZQHUVKLS LV WR EH IRXQG HOVHZKHU  
LPSRVHG E\ IRUFH DQG RQO\ ZHDUV ~~XP~~ ~~PH~~

LQ IDYRXU RI ZDJHGRP LV DV YDOXHOHV  
DSRORJLJH IRU SULYDWH SURSHUW\ DQG  
: H DUH QHYHUWKHOHVV JRLQJ WR H[D  
DQ\ WUXWK LQ LW

)LUVW, RILDWQORW HYLGHQW XWGDHVG IRIQDW  
IUHH ZRUN ZHUH UHDOO\ PHQDFHG E\ OI  
DXWKRULWDULDQ\ RQ ZH KDYH QRZDGD\ V  
WR ZDJHGRP"

/HW XV WDNH D JURXS RI YROXQWHHUV  
HQWHUSULVH +DYLQJ LWV VXFFHVV DW  
WKH DVVRFLDWHV ZKR LV IUHTXHQWO\ [  
DFFRXQW GLVVROYH WKH JURXS HOHFW  
FRGH RI SHQDOWLHV" ,W LV HYLGHQW WI  
GRQH EXW WKDW VRPH GD\ WKH FRPUDG  
WROG 3)ULHQQ ZH VKRXOG OLNH WR ZR  
IURP \RXU SRVW DQG \RX GZHV\ P\XV\ZRSUNL  
ILQG RWKHU FRPUDGHV ZKRIZUEQFSXW X

7KLV ZD\ LV VR QDWXUDO WKDW LW LV  
DOO LQGXVWULHV LQ FRPSHWLWLRQ ZLV  
ZDJHV VXSHUFLZRENDPDQ PD\ HQWHU WK  
WLPH EXW LI KH GRHV\KALWLDG\HNUVEKGO\F  
ODJLQHVV RU RWKHU GHIHFWV LI KH LV  
FRPSHOHG WR OHDYH WKH ZRUNVKRS

\$XWKRULWDULDQV SUHWHQG WKDW LW  
ZKR PDLQWDLQ UHJXODULW\ DQG TXDQLW  
VRPHZKDW FRPSOLFDWHG HQWHUSULVH  
WKURXJK PDQ\ KDQGV EHIRUH EHLQJ ILQ  
ZRUNPHQ DVZKORXV\H\WR WKH JRRG TXDO  
EHVW IDFWRULHV RI %ULWLK SULYDWH  
DYHUDJH WKDQ WKH )UHQFK IDFWRULHV

\$ FHUWDLQ VWDQGDUG RI SXEOLF PRUD  
\$XWKRULWDULDQV VD\ LW LV GXH WR UX  
LQ UHDOLW\ LWQ LWSPV\KQWBLMQ\$BOLFHPH(  
30DQ\ DUH WKH ODZV SURGXFLQJ FULPLQ

1RW RQO\ LQ LQGXVWULDO ZRUNVKRSV  
HYHU\ZKHUH HQHUVGDDH WKDW RQO\ ER  
QRWLRQ RI :KHQ D UBGOZDWHFQSDWK R\

WR IXOILO LWV HQJDJHPHQWV ZKHQ LW\  
WKH VWDWLRQV WKH RWKHU FRPSDQLHV  
WKUHDW ~~LVFXDVOO~~\ VXI

,W LV JHQHUDOO\ EHOLHYHG DW DQ\ U  
WKDW FRPPHUFH RQO\ NHHSV WR LWV HC  
1RWKLQJ RI WKH VRUW QLQH WLPHV LQ  
ZLOO QRW DSSHU EHIRUH D MXGJH 7KH  
/RQGRQ WKH VROH IDFW RI KDYLQJ GUEF  
IRU WKH LPPHQVH PDMRULW\ RI PHUFKDC  
GHDOLQJV ZLWK D PDQ ZKR KDV FRPSHO  
7KLV EHLQJ VR ZK\ VKRXOG PHDQV WKI  
WKH ZRUNVKRS WUDGHUV LQ WKH WUDG  
RJDQL]DWLRQ RI WUDQVSRUW QRW EH P  
YROXQWDU\ ZRUN"

7DNH IRU H[DPSOH DQ DVVRFLDWLRQ \  
VKRXOG FDUU\ RXW WKH ~~KRQGGHURJVLQNHFRVQR~~  
RI RXU KRXVHV VWRUHV VWUHHWV ~~HPHFB~~  
FRQGLWLRQ WKDW IURP WZHQRW\ WR IRU  
FRQVHFUDWH IRXU RU ILYH KRXUV D GD\  
H[LVWHQFH &KRRVH \RXUVHOI WKH SURC  
RJDQL]H D QHZ JURXS SURYLGHG WKDW  
QHFHVVDULHV \$QG DV IRU WKH UHPDLQ  
ZKRPVRHYHU \RX OLNH IRU UHFUHDWLRQ  
RI \RXU WDVWH

<sup>3</sup>ZHOYH RU ILIWHHQ KXQGULHG ~~KRHXURVW~~  
SURGXFLQJ IRRG FORWKHV RU KRXVHV  
WUDQVSRUW DQG VR RQ LV DOO ZH DVN  
JXDUDQWHH WR \RX WKH IUHH XVH RI DO  
SURGXFH %XW LI QRW RQH RI WKH WKR  
UHFHLYH \RX ZKDWHYHU EH WKHLU PRW  
SURGXFLQJ DQ\WKLQJ XVHIXO RU LI \RX  
PDQ RU OLNH DQ LQYDOLG ,I ZH DUH UL  
OLIH ZH VKDOO EH GHOLJRW ~~WHDGHWB~~ PIDQH  
WKH ULJKW WR OLYH %XW DV \RX ZLVK \  
WKH UDQNV LW LV PRUH ~~WKDUISURLEWDEO~~  
UHODWLRQV ZLW ~~WKXZVLKIOUEFLWRBPNHG~~ XSF  
ERX ~~HURLV~~ V ~~KLQHWV~~ VRPH IULHQGV RI \RX

WDOHQW NLQGO\ IUHH \RX IURP DOO PR  
DOO WKH QHFHVVDU\ ZRUN IRU \RX  
3\$QG ILQDLOM GRHV QRW SOHDVH \RX J  
HOVHZKHUH LQ WKH ZLGH ZRUQ@QRJH HZQ  
RQ QRYHO SHLSQHLSHQHR XU RZQ '  
7KLV LV ZKDW FRXOG EH GRQH LQ D FR  
VOXJJDUGV LI WKH\ EHFDPH WRR QXPHUF

, 9

: H YHU\ PXFK GRXEW WKDW ZH QHHG IHD  
EDVHG RQ WKH HQWLUH IUHHGRP RI WKH  
,Q IDFW LQ VSLWH RI WKHUSIGHEPLWKRQ  
RZQHUVKLS RI FDSLWDO WKH UHDOO\ OI  
ODJLQHVV EH GXH WR LOOQHVV  
\$PRQJ ZRUNPHQ LW LV RJMRHQ\ VDLHG LVGLO  
FHUWDLQO\ HQRXJKWRR RWKHUH WJW WJFHHS  
LQ HYHU\ LQGXVWULDO HQWHUSULVJHRR'  
ZKR ZRUN YHU\ KDUG ,W LV WJXIHVSKURW  
SULYLOHJHG SRVLWLRQ WR DZDUG WKHP  
WKH\ ZRUN XQGHU K\JLHQRIRFZKLGKWSLRQ  
WR GR WKHLU EXVLQHVV ZLWKRXW WRR |  
FRQGLWLRQV ZKLFK ZH FODLP IRU DOO Z  
,W PXVW DOVR EH VDLG WKDW LI WKDC  
RIWHQ SHUIRUP DEVROXWHO\ XVHOHV R  
QH YHUWKHOHVV WKH OLQLVWHUV +HDGV  
EDQNHWWXEMHFW WKHPVHOYHV IRU D QX  
ZKLFK WKH\ ILQG PRUH RU OHVV WLUHVR  
WKLW REOLJDWRU\ ZRUN \$QG LI LQ QLQ  
ZRUN WKH\ ILQG LW QRQH WKH OHVV WL  
PLGGOH FODVV SXJW HJHOKLDJHLDW KDU  
QRW DQG GHIHQGLQJ WKHLU SULYLOHJH  
GHIHDWLQJ WKH DQG WKDQREKDLWRQWL

WKH\ ZHUH LGOHUV WKH\ ZRXOG ORQJ V  
KDYH GLVDSSHDUHG QD NDHVR R EHDVU LW WDW  
IRXU RU ILYH KRXUV D GD\ RI XVHIXO SC  
PLGGOH FODVV SHRSOH ZRXOG SHUIRUP  
FHUWDLQO\ ZRXOG QRW SXW XS ZLWK W  
QRZDGD\ V ZLWKRXW UHIRUPLQJ WKHP ,I  
VHZHUV RI /RQGRQ UHVW DVVXUHG WKD  
PDNLQJ WKHP DV VDQLWDU\ DV KLV SK\ V  
\$V WR WKH ODJLQHVV RI WKH JUHDW PC  
HFRQRPLVWV DQG SKLODQWKURSLVWV FI  
,I \RX DVN DQ LQWHO Q HJ ZIQVO PDIQX OD FRA  
RQO\ SXW LW LQWR WDIOL UDK MDRGVL HWR ZERH  
IRU QR PHDVXU Q RR M WHWHHPJ IRW\ S\ LQJ ZRXX  
VKRXOG KDYH VHHQ WKH WHUURU FDXVH  
IHZ DJLWDWRUV VWJRU WDIQO S H P%DFK SDD GW  
ZRUNDN<sup>PH</sup> LWGIRDQRW RYHUZRUN \RXUVHO  
FDQ<sup>3</sup>7KH\ GHPRUDOLJHW MK\ HZDQWN MUR NLO  
WKR VH VDPH SHRSOH ZKR WKH GD\ EHIRI  
WKH ZRUNHU DQG WKH EDG TXDOLW\ RI P  
WKH\ DUH UHSQD P H Q W H G L G P H U H Z K R P W K  
VXSSRVHG FRQWLQXDOO\ WR WKUHD B ZKHQ  
ZRXOG WKH ZRUG <sup>3</sup>GHPRUDOLJDWLRQ' VL  
6R ZKHQ ZH VSHDN RI SRVVLEOH LGOHU  
TXHVWLRQ RI D VPDOO PLQRULW\ LQ VRF  
PLQRUZLWMOG LW QRW EH ZLVH WR VWXG\  
REVHUYHV ZLWK DQ LQWHOOLJHQW H\H  
ODJ\ DW VFKRRO LV RIWHQ WKH RQH ZKL  
KH LV EHLQJ EHDG\ ORIW BIXQJ KMB BQJ LWURP V\*  
DQDHPLD FDXVHG E\ SRYHUW\ DQG DQ D  
ODJ\ DW \*UHHN RU /DWLQ ZRXOG ZRUN D\  
HVSHFLDOO\ LI KH ZHUH WDXJKV\$ ZLWQ ZV  
VWXSLG DW PDWKHPDWLFV EHFRPHV WKH  
FKDQFH PHHWV VRPHERG\ ZKR FDQ H[SOI  
ZKLFK VKH GLG QRW XQGHUVWDQG \$QG  
FXOWLYDWHV KLV JDUGHQ DW GDZQ ZKL  
ZRUN DJDLQ DW QLJKWIDOO ZKHQ DOO C



6RPHERG\ KDV VDLG WKDW GXVW LV PD  
GHILQLWLRQ DSSOLHV WR QLQHWHWIDQWISV  
DVWUD\ LQ D GLUHFWRQ WKDW GRHV QF  
FDSDFLWLHV ,Q UHGGLQJ WKH ELRJUDSI  
QXPEHU RI <sup>3</sup>LGOHUV' DPRQJ WKHP 7KH\  
IRXQG WKH ULJKW SDWK DIWHUZDUGV W  
6WHSKHQVRQ DQG PDQ\ RWKHUV EHORQ  
9HU\ RIWHQ WKH LGOHU LV EXW D PDQ\  
OLIH PDNLQJ WKH HLJKWHHQWK SDUW RI  
ZKLOH KH IHHOV KHJKDZLFXKHUZRQWGH  
HOVHZKHUH 2IWHQ WRR KH LV D UHEH  
OLIH WR D ZRUNEHQFK LQ RUGHU WR SUI  
HPSORZHWOH NQRZLQJ KLPVHOI WR EH ID  
NQRZLQJ KLV RQO\ IDXOW WR EH WKDW F  
FRPLQJ LQWR WKH ZRUOG LQ D FDVWOH  
/DVWDDQ LPPHQVH QXPEHU RI <sup>3</sup>LGOHUV'  
NQRZ ZHOO HQRXJK WKH WUDGH E\ ZKLF  
OLYLQJ 6HHLQJ WKH LPSHUIHFW WKLQJ  
YDLQO\ WR DQGESHWUFHUYLQJ WKDW WKH\  
RI WKH EDG KDELWV RI ZRUN DOUHDG\ D  
DQG QRW NQRZKQW BQZRWKHU JHQHUDO  
DQG DUWLWV ZKRUDURFDWLOXWIFDXWH  
2Q WKH RWKHU KDQG KH ZKR VLQFH KL  
ZHOR KDQGGZHONKHSFKLOH WKH EUXV  
IHHOV WKDW ZKHDXWZHOORQVYLU JLYH XS  
RU WKH ILOH +H ZLOO ILQG SOHDVXUH L  
ORQJ DV KH LV QRW RYHUGULYHQ  
8QGHU WKHLBOHODVPHULHV RI UHVHQWV  
KDYH EHHQ JURXSHG RI ZKLFK HDFK RQI  
EHLQJ D VRXUFH R/ILNMLDOWRTXRFWHLRQV  
DQG UHODWHG WR KXPdq IDFXOWLHV ID  
FRPPRQ ZLWK RQHRSQRWSDHON RI ODJLQH  
JLYLQJ WKHPVHOYHV WKH WURXEOH WR  
SXQLVK WKHVH IDXOWV ZLWKRXW LQTXLI  
FRQWDLQ D SUHPLXP RQ <sup>3</sup>ODJLQHVV' RU  
7KLV LV ZK\ D IUIHLWVRFZHWKH QXPEHU I  
PLGVW ZRXOG QR GRXEW WFKLQHBIDPLQ

RUGHU WR VXSSUHV V LW EHIRUH KDYLQ  
FDVH DV ZH KDYH DOUHDG\ PHQWLRQHG  
VW~~X~~QJ WKH EUDLQ RI D FKLOG ZLWK VFLI  
SURGXFH EORRG VWUHQJWKHQ KLP DQC  
KLP WR WKH FRXQWU\ RU WR WKH VHD~~WRV~~  
ERR~~N~~WRPHV~~E~~\PHDVXULQJ WKH GLVWDQFH  
WUHH QDWXUDO VFLHQFHV ZKLOH SLFN  
VFLHQFH ZKLOH EXLOGLQJ WKH ERD~~W~~~~D~~  
GR QRW ILOO KLV EUDLQ ZLWK FODVVLFC  
PDNH DQ LG~~O~~HU RI KLP

2U KHUH LV D FKLOG ZKLFK KDV QHLWKI  
FKLOGUHQ ILUVW LQFXOFDWH RUGHU DPL  
WKH ZRUNVKRS WKH ZRUN WKDW ZLOO K  
PDQ\ WRROV DERXW XQGHU WKH ~~Z~~~~L~~~~O~~~~O~~  
WKHP PHWKRQ %XW GR QRW PDNH GLVR  
VFKRRO ZKRVH RQO\ RUGHU LV WKH~~W~~~~U~~~~X~~  
LPDJH RI WKH FKDR~~Z~~~~L~~~~O~~~~Q~~ QM~~V~~~~H~~~~W~~~~H~~~~D~~~~E~~~~F~~~~K~~~~S~~~~Q~~~~J~~~~M~~  
ORYH RI K~~B~~~~U~~~~F~~~~R~~~~O~~~~V~~~~I~~~~D~~~~V~~~~G~~~~H~~~~R~~~~H~~~~F~~~~W~~~~K~~~~R~~~~G~~ LQ ZRUN  
'R QRW \RX VHH WKDW E\ \RXU PHWKRQ  
IRU h ```` VFKRODUV ZKR~~H~~~~U~~~~S~~~~Q~~~~M~~~~V~~~~H~~~~D~~~~E~~~~F~~~~K~~~~S~~~~Q~~~~J~~  
RQO\ LPSRVH D V\VWHP JRRG IRU PHGLRI  
PHGLRF~~U~~~~L~~~~X~~~~U~~~~L~~~~H~~~~V~~~~K~~~~R~~~~R~~~~O~~ EHFRPHV D 8QLYHU  
LV D 8QLYHUVLV\ RI FULPH 0DNH WKH V  
JUDGHV DSSHDO WR WKH YROXQ~~M~~~~H~~~~W~~~~D~~  
PDNLQJ ODZV DJDLQVW ODJLQHVV ZKLFK  
\*LYH WKH ZRUNPDQ ZKR FDQQRW FRQG  
PLQXWH SDUWLFOH RI VRPH REMHFW ZK  
ZKLFK KH HGGV E\ ORDWKLQJ JLYH KLP  
WUHHV LQ WKH IRUHVW VDLQLQJ WKH VI  
VSDFH RQ DQ HQJLQH EXW GR QRW PDNI  
OLIH WR DWWHQG WR D VPDOO PDF~~K~~~~L~~~~Q~~~~M~~  
WKH H\H RI D QHHGOH

6XSSUHV V WKH FDXVH RI LGOHQHVV DC  
LQGLYLGXDOV ZLOO UHDOO\ KDWH ZRUN  
ZLOO EH QR QHHG WR PDQXIDFWXUH D FI

7 • ~ & ^ ... .. ~ | z, € , ~ 6 ' 6E • ~ †

, Q WKHLU SODQV IRU WKH UHFRQVWUXFV  
RXU RSLQLRQ D: KMLZORH RVCSG DINULORJURI DER(   
WKH\ LQWHQG QHYHUWKHOHV WR UHWD  
RI WKE\$H\$XJOM HQWDWLYH \*RDYHUUQIPHQWHD  
\$V UHJDUGV VR FDOOHG UHSUHVHQWDM  
DERXW LW , W LV DEVROXWHO\ LQFRB S QGI  
VXFK DUH QRW ZDQWLQ FIDQ WKHP FLRO S BE  
QDWLRQDO RU PXQLFLSDO SDUOLDPHQW'  
WKHLQ )UDQFH LQ (QJO BRQGLQ LQ KHU8FDLQ  
:KLOH ZH VHH SDUOLDPHQWDU\ UXOH E  
RI WKLV UXOH<sup>2</sup> QURV LRQJOO FRXGLMV UWWXOV  
SULQFKBØHLW LW WKDW WKH UHYROXWLR  
DOUHDG\ FRQGHPQHG WR GLH"  
%XLOW XS E\ WKH PLGGOH FODVVHV WR  
VDQFWLRQLQJ DQG DW WKH VDPH WLPH  
ZRUNHUV SDUOLDPHQWDU\ UXOH LV SUH  
XSKROGHUV RI WKLV V\ VWHP KDYH QHYH  
RU D PXQLFLSDO FRXQFLO UHKSUPRVVWQWQ  
DPRQJ WKHP NQRZ WKDW WKLV LV LPSRV  
XVHG WKH SDUOLDPHQWDU\ V\ VWHP WR I  
SUHWHQVLRQZLVKBRWDOMMLQJ %XW SHHDS  
WKH SHRSOH EHFRPH FRQVFLRXV RI WKH  
LQWHUHVVV LV JURZLQJ WKH V\ VWHP FI  
DOO FRXQWULHV YDLQO\ LPBHLHQGXDFUWB  
IRXQG WR EH D IDLOXUH SURSRUWLRQD

UHSUHVHQWDWLRQ RI PLQRULWLHV DQG  
WKH\ VWULYH WR ILQG ZKDW LV QRW WR  
WKH\ DUH ERXQG WR UHFRJQL]H WKDW L  
5HSUHVHQWDWLYH \*RYHUQPHQW YDQLVK  
,W LV WKH VDDPHZ\ WKVWVWHP :EHFDXVH  
SULYDWH SURSHUW\ LV SURFODLPHG DQ  
RI SURGXFWLRQ ~~QRZ~~ EDQWRKXZB GHV\ V\V'  
DQ\ IRUP" 7KLV LV QHYHUKHOHV ZKD  
UHFRPPHQG W ~~QD~~ EXVH ~~RD~~ W ~~WD~~ HPRGH RI UHP  
ODERXU DFFRPSOLVKHG IRU W ~~WK~~ H ~~U~~ ~~6~~ ~~W~~ ~~DD~~ ~~W~~  
,W LV HDV\ WR XQGHUVWDQG ZK\ WKH F  
5REHUW 2ZHQ FDPH WRFW ~~K~~ ~~H~~ ~~X~~ ~~V~~ ~~W~~ ~~W~~ ~~H~~ ~~R~~ ~~M~~  
PDNH &DSLWDO DQG /DERXU DJUHH 7KH\  
RQ FDSLWDOLVW SURSHUW\ E\ PHDQV RI  
,W LV DOVR HDV\ WR XQGHUVWDQG ZK\  
LGHD ,Q KLV 0XWDOLVW V\VWH ~~P~~ ~~K~~ ~~V~~ ~~H~~ ~~W~~ ~~H~~  
QRWZLWKVWDQGLQJ WKH U ~~Z~~ ~~W~~ ~~D~~ ~~L~~ ~~Q~~ ~~K~~ ~~J~~ ~~G~~ ~~H~~ ~~I~~ ~~V~~  
WKH ERWRP RI KLV KHDUW EXW ZKLFK  
LQGLYLGXDOV DJDLQVW WKH 6WDWH  
1HLWKHU LV LW DVWRQLVKLQJ WKDJ ~~W~~ ~~R~~ ~~E~~  
DGPLW ~~D~~ ~~H~~ ~~E~~ ~~R~~ ~~X~~ ~~H~~ ~~V~~ 7KH\ FDUH OLWWOH ZKI  
QRWHV RU LQ FRLQI ~~V~~ ~~J~~ ~~W~~ ~~D~~ ~~R~~ ~~S~~ ~~H~~ ~~I~~ ~~G~~ ~~H~~ ~~Z~~ ~~L~~ ~~H~~ ~~S~~ ~~K~~ ~~E~~ ~~V~~ ~~K~~ ~~I~~ ~~F~~  
7KH\ RQO\ FDUH WR VDYH IURP GHVWUXF  
GZHoolQJ KRXXHV RI ODQ ~~Q~~ ~~K~~ ~~B~~ ~~W~~ ~~I~~ ~~D~~ ~~F~~ ~~W~~ ~~R~~ ~~O~~ ~~H~~  
GZHoolQJ KRXXHV DQG WKH FDSLWDO W  
ODE ~~R~~ ~~R~~ ~~W~~ ~~H~~ ~~V~~ ZRXOG MXVW DQVZHU WKH S\  
SURSHUW\  
\$V ORQJ DQ ~~R~~ ~~O~~ ~~W~~ ~~D~~ ~~E~~ ~~R~~ ~~R~~ ~~D~~ ~~Q~~ EH H[FKDQJHG IR  
RZQHU RI WKH KRXXVH ZLOO ZLOOLQJO\ D  
GZHoolQJ KRXXHV ILHOGV DQG IDFWRU  
KDYH WR SD\ WKHVH RZQHURULE ~~C~~ ~~H~~ ~~R~~ ~~O~~ ~~J~~ ~~H~~ ~~Z~~ ~~O~~  
LQ WKH ILHOGV RU IDFWRULHV RU IRU O  
WR EH SDLG E\ WKH ZR ~~P~~ ~~R~~ ~~O~~ ~~V~~ ~~U~~ ~~L~~ ~~Q~~ ~~J~~ ~~R~~ ~~I~~ ~~O~~ ~~G~~ ~~T~~ ~~X~~  
H[FKDQJHDEOH IRU DOO VRUWV RI FRPPF  
PDLQWDLQHG DQG WKH ULJKW WR OHY\  
ODE ~~R~~ ~~R~~ ~~W~~ ~~H~~ ~~V~~ WKLW QHZ IRUP RI ZDJHGRP

WKH ILHOGV DQG WKH IDFWRULHV WKD WOV  
ZLOO EHORQJ WR WKH FRPPXQH RU WKH

, ,

/HW XV FORVHO\ H[DPLQH WKLW V\ VWHP I  
SUHDFKHG E\ WKH )UHQFK \*HUPDQ (QJC  
6SDQLVK DQDUFKLVWV ZKR VWLOO FDOC  
&ROOHFWLYLVP WKH SRVVHVVLRRQ LQ FRI  
DQG WKH <sup>3</sup>OLEHUW\ RI HDFK JURXS WR G  
DFFRUGLQJ WR FRPPXQLVW RU DQ\ RWKH  
,W DPRXQWV WR WKLW (YHU\ ~~FRGRZQ~~ UN  
HWFKH ZRUNLQJ GD\ LV IL[HG E\ WKH 6W  
IDFWRULHV ~~WKH~~ UURZRGWGD\ LVO ~~SE~~ ~~ROURHU~~  
ZKLFK LV LQVFULEH ~~G~~ ~~ZK~~ ~~W~~ ~~K~~ ~~R~~ ~~W~~ ~~K~~ ~~Z~~ ~~R~~ ~~U~~ ~~N~~ ~~G~~  
WKH ZRUNHU FDQ SURFXUH DOO VRUWV F  
6WDWH RU E\ GLYHUVH FRUSRUDWLRQV  
EX\ DQ ~~M~~ ~~K~~ ~~R~~ ~~U~~ ~~N~~ ZRUWK RI PHDW WHQ PLQ  
DQ KR XU RI WREDFR \$IWHU WKH &ROOF  
<sup>3</sup>WZRS HQFH ZRUWK RI VRDS ' ZH VKDOO '  
ORVW FROOHFWLYLVWV WUXH WR WKH  
HFRQRPLVWV DQG E\ ~~ODX~~ ~~Q~~ ~~D~~ ~~Z~~ ~~R~~ ~~Z~~ ~~H~~ ~~O~~ ~~D~~ ~~E~~ ~~S~~ ~~O~~ ~~R~~ ~~H~~  
WHOO XV ~~W~~ ~~K~~ ~~D~~ ~~E~~ ~~R~~ ~~H~~ ~~U~~ ~~S~~ ~~G~~ ~~J~~ ~~R~~ ~~I~~ ~~H~~ ~~V~~ ~~V~~ ~~L~~ ~~R~~ ~~Q~~ ~~D~~ ~~O~~ ~~Z~~ ~~R~~ ~~U~~ ~~I~~  
TXDQWLW\ ~~V~~ ~~L~~ ~~P~~ ~~S~~ ~~O~~ ~~H~~ ~~N~~ ~~D~~ ~~Q~~ ~~X~~ ~~V~~ ~~R~~ ~~Z~~ ~~H~~ ~~N~~ ~~R~~ ~~X~~ ~~I~~ ~~U~~ ~~D~~ ~~G~~ ~~R~~  
WR EH FRQVLGHUHG DV HTXLYDOHQW WR  
QXUVH RU WR WKUHH RU IE ~~3~~ ~~U~~ ~~R~~ ~~K~~ ~~R~~ ~~X~~ ~~V~~ ~~L~~ ~~V~~ ~~R~~ ~~Q~~ ~~Z~~  
ZRUN ZLOO EH D PXOWLSOH RI VLP SOH ;  
<sup>3</sup>EHFDXVH WKLW NLQG RI ZRUN QHHGV D  
6RPH RWKHU FROOHFWLYLVWV VXFK D\  
PDNH WKLW GLVWLQFWLRQ 7 ~~K~~ ~~D~~ ~~H~~ ~~S~~ ~~U~~ ~~R~~ ~~F~~ ~~I~~ ~~D~~  
WKH VFKR ~~D~~ ~~Q~~ ~~G~~ ~~D~~ ~~W~~ ~~H~~ ~~U~~ ~~S~~ ~~U~~ ~~R~~ ~~I~~ ~~H~~ ~~V~~ ~~V~~ ~~R~~ ~~U~~ ~~F~~ ~~Z~~ ~~L~~ ~~O~~ ~~X~~ ~~E~~ ~~M~~  
VDPH UDWH D ~~M~~ ~~J~~ ~~K~~ ~~K~~ ~~H~~ ~~K~~ ~~R~~ ~~X~~ ~~U~~ ~~M~~ YLVLWLQJ WK

ZRUWK WKH VDPH DV HLJKW KRXUV VSHQ  
IDFWRULHV

6RPH PDNH D JUHDWHU FRQFHVVLRR W  
XQKHDOVWKFZKDM VFBXODJEH SDLG IRU I  
DJUHHDEOH ZMUZRQHRKRXUZHUPDQ ZR  
WZR KRXUV RVDZSWRIHVVRU

/HW XV DGG WKDW FHUWDLQ FROOHFWL  
OXPS VXP IRU ZRUN GRQH 7KXV D FRUSF  
KXQGUHG WRQV RI VWHHO \$ KXQGUHG Z  
DQG LW WRRN WKHP WHQ GD\ 7KHLUWZF  
WDNHQ WKHP h `` ZRUNLQJ KRXUV WVRJSK  
KRXUV D WRQ )RU WKLW WKH 6VDRWHHVR  
KRXU HDFK DQG WKHVH h `` FKHTXHV Z  
RI WKH LURQZRUNV DV WKH\ WKHPVHOYH

2Q WKH RWKHU KDQG D KXQGUHG PLQH  
h `` WRQV RI FRDO FRDO ZRXOG EH ZRL  
FKHTXHV RI RQH KRXU HDFK UHFHLYHG  
GLYLGHG DPRQJ WKHLU PHPEHUV DFFRUC  
,I WKH PLQHUV SURWHVWHG DQG VDLG  
KRXUV↑ ZRUN LQVWHDG RI HLJKW LI WKI  
IRXU WLPHV PRUH WKDQ WKH QXUVH WK  
VHWWOHVWKGEHVGLI

6XFK LV LQ D IHZQRJUDGWLROKWKRHUFROO  
DULVH RXW RI WKH 6RFLDO 5HYROXWLRQ  
&ROOHFWLYH SURSHUW\ RI WKH LQVWUX  
HDFK DFFRUGLQJ WR WKH WLPV VSHQW L  
SURGXFWLYLW\ \$RIWKRWOBIESRROLWLFDO V\  
3DUOLDPHQW DU\ V\SRWHLVLPYRIGLQLYWQAFR  
HOHFWHG 5DQHOEYDWRHW QBRDQHE\ WKH  
QDWLRQ

/HW XV RZQ WKDW WKLW V\WHP DSSH  
&ROOHFWLYLVV EHLQ E\ SURFODLPLC  
DEROLWLRQ RI 2SULQDWKHSURSHUHQ\ LW  
SURFODLPHG E\ JSQRDGLRQDRQ SURGXF\  
ZKLFK RULJLQDWHG LQ SULYDWH SURSHU  
7KH\ SURFODLP D UHYROXWLRQDU\ SUL  
WKDW WKLW SULQFLSOH ZLOOHLQHWKDE

RI DEROLVKLQJ LQGLYLGXDO SU~~ROSDHJG~~\ I  
IDFWRULHV <sup>2</sup> ~~BRV~~ OFDXSLFKDORFLHW\ LQW  
PXVW FRPSOHWHO\ RYHUWKURZ WKH SUH  
DLP DV ZHOO DV LQ LWV PHDQV PXVW PI  
LQGLYLGXDOV DV VR~~ROQ~~ ~~GVDO~~ ~~ODQ~~ ~~FW~~ ~~PHU~~ ~~KL~~  
SURGXFWLRQ DUH FRQVLGHUHG FRPPRQ  
7KH\ V~~DIR~~ SULDYDWH ~~SG~~ ~~RLSP~~ ~~PHU~~ ~~GLD~~ ~~WHO~~\ D  
SULDYDWH SURSHUW\ LQ ~~LR~~ ~~XVV~~ ~~GD~~ ~~LOO~~ ~~PH~~ ~~DL~~  
DV UHJDUGV SURGXFWLRQD ~~OL~~ ~~OH~~ ~~V~~ ~~G~~ ~~D~~ ~~WW~~ ~~KDR~~  
WLOO ~~OD~~ ~~FR~~ ~~ZR~~ ~~UL~~ ~~HV~~ UDLOZDHW ~~FK~~ ~~DO~~ ~~ED~~ ~~UX~~ ~~H~~ ~~VR~~ ~~X~~  
VOLJKWHVW GLVWLQFWLRQ ZLOO EH PDG  
FROOHFWLYH SURSHUW\

<sup>3</sup>%XW IURP WRPRUURZ \RX ZLOO PLQXW  
WDNH LQ WKH FUHDW ~~L~~ ~~R~~ ~~QW~~ ~~KI~~ ~~HQ~~ ~~G~~ ~~H~~ ~~Z~~ ~~J~~ ~~P~~ ~~D~~ ~~F~~ ~~R~~ ~~R~~ ~~Q~~  
ZLOO FDUHIXOO\ ZHLJK ZKDW SDUW ~~R~~ ~~X~~ ~~V~~  
FRXQW \RXU PLQXWHV RI ZRUN DQG \RX  
QHLJKERXUV VKRXOG QRW EX\ PRUH WKD

<sup>3</sup>\$QG DV DQ KRXU PHDVXUHV QRWKLQJ  
WR VL[ ~~S~~ ~~R~~ ~~Z~~ ~~F~~ ~~V~~ DW D WLPH ZKLOH LQ DQF  
ZHLJK WKH PXVFXODUJ ~~IR~~ ~~D~~ ~~U~~ ~~F~~ ~~G~~ ~~W~~ ~~K~~ ~~K~~ ~~H~~ ~~Q~~ ~~E~~ ~~H~~ ~~U~~ ~~B~~ ~~R~~  
KDYH H[~~S~~ ~~R~~ ~~Z~~ ~~F~~ ~~V~~ ~~G~~ ~~H~~ ~~O~~ < DFFXUDWHO\ FDOFXOD  
RUGHU WR DSSUDLVH WKH DPRXQW HDFK  
W~~K~~ ~~D~~ ~~W~~ ~~H~~ ~~U~~ KDYLQJ GHFODUHG WKDW \RX G  
SD~~S~~ ~~W~~ ~~R~~ ~~G~~ ~~X~~ ~~F~~ ~~W~~ ~~L~~ ~~R~~ ~~Q~~ '

: HOO IRU XV LW LV HYLGHQW WKDW D  
RSSRVHG SULQFLSOHV WZR SULQFLSOH\  
\$QG D QDWLRQ RU D FRPPXQH ~~Z~~ ~~K~~ ~~E~~ ~~K~~ ~~D~~ ~~V~~ ~~R~~ ~~X~~  
EH FRPSHOOHG WR UHYHUW WR SULDYDWH  
RU WR WUDQVIRUP LWVHOI LQWR D FRPP

: H KDYH VDLG WKDW FHUWDLQ FROOHFW  
EH PDGH ENVDZIRHUSGURIHVVLROPSORUN7E  
SUHWHQG WKDRU DQRKBODQODUQKILWHFXV  
FRQVLGHUHG DV WZR RU WKUHH KRXUV†  
KRVSLWDO QXUVH \$QG WKH VDPH GLVWL  
WUDGHV QHFHVVLWDWLQJ DSSUHQWLFHV  
: HOO WR HVWDEOLVK WKLV GLVWLQFW  
RI SUHVHQWVWZRFLOLQVPHDQ IL[LQJ D GLYL  
EHWZH HQ WKH ZRUNHUV DQG WKRVH ZKR  
GLYLG LQJ VRFLHW\ LQWRWKZIRDYUHLVWQEFVW  
NQRZOHGJH SODFHG DERYH WKKKRRJQH K  
WR VHUYH WKH RWKHU WKH RQH ZRUNL  
ZKR SURILWLQJ E\ WKHLU OHLVXUH VW)  
,W ZRXOG PHDQ UHYLYLQJ RQH RI WKH  
DQG JLYLQJ LW WKH VDQFWLRQ RI WKH 6  
XS DV D SULQFLSOH DQ DEXVH DOUHDG\  
VRFLHW\

: H NQRZ WKH DQVZHU ZH VKDOO JHW 7  
6RFLDOLVP' WKHJZLVOHTFRQVPLVXW DC  
WKDW D VFDOH RI ZDJHV KDV LWVFDLRR  
HQJLQH HU ZLOO KDYH FRVW PRUHFRMR  
QDYY,Q 410FWH QRW HFRQRPLVWV WULHG \\  
LV SDLG WZHQW\ WLPHEFRDWWK3DQH HQ  
WR PDNH DQ HQJLQH HU LV JUHDWHU WKE  
KDV QRW ODU[ DVVHUWHG WKDW WKH VD  
WZR EUDQFKHV RI PDQXDO ODERXU" +H F  
WDNHQ XS RQ KLV RZQVFRXQW 5D0DXHG  
JRRDWH[FKDQJHG LQ SURSRUWLRQ WR W\  
QHFHVVDU\ IRU WKHLU SURGXFWLRQ

%XW ZH NQRZ ZKDWWRQVZLQKDRW WIKHQ  
RU GRFWRUV DUH SDLG WHQ RU D 100GIL  
ZH DYHU HDUQV WKUHH WLPHV PRDQGWKE  
PRUH WKDQ D JLUO LV DVQRMKEIDFWDRU  
SURGXFWLRQ ' EXW E\ UHDVRQ RI D PRQ  
LQGXV\WJLQH HU VFLHQWLVWV DQG 2GRI  
WKHLU GDSORLQV OH FODVV HPSORUHW H  
XVHG WR H[SORLW WKHLU WLWOHV RI QR



\$V WR WKH HPSOR\HU ZKR SD\ V DQ HQJ  
ODERXUWUUV VLP SO\ GXH WR SHUVRQDO L  
...d `` ` D \H DU RQ WKH FRVW RI SURGXFW  
WKH HPSOR\HU KDV D IRUHPDQ ZKR VDYF  
VZHDWLQJ ZRUNPHQ KH JODGO\ JH YSDUW  
H[WUD ...d` ZKHQ KH H[SHFWV WR JDLQ ...  
&DSLWDOLVW V\WUHQFHM R B WDUGLQDP RC  
WUDGHV

/HW WKHP WKHUHIRUH QRW W DON WR  
UDLVHV WKH FRVW DG WNL OOHG/ ODKERXU  
VSHQW KLV \RXWK LU JWRQD ZHU MLWH Q DW  
WKH VRQ RI D PLQHU ZKR KDV JURZQ SD  
WKDW D ZHLYWU KDDH W KUHH RU IRXU  
DQ DJULFXOW XKB OF R DWRXUMH DFKLQJ D Z  
WLP HV JUHDWHU WKDQ WKH FRVW RI WHI  
EHQHILWV E\ WKH DGYDQWDJHV KLV LQG  
FRXQWULHV WKDW KDYH DV \HW QR LQG  
SULYLOHJHV DFFRUGHG E\ DOO 6WDWHV  
WKH VRLO

1RERG\ KDV HYHUF R D OFR X D W L R Q S U R G X F  
QREOH ORDIHU FRVWV IDU P R W H U M R D L R Q V  
ZKHWKHU D UREXVW GD\ ODERXUHU GRH  
DUWLVDQ ZKHQ ZH KDYH WDNHQ LQWR D  
WKH UDYDJHV RI DQDHP LD DQG SUHPDW  
&RXOG MKUHN [DPSOH PDNH X G S B I O G H Y R I  
ZRUNZRPD G S D L G W R J Q G \$ X Y D Q W J L U O ;  
ODFH PDNL Q J G S D L G W R a W K H S H D V D Q W U  
SURGXFW MLRQRZ:IXOO ZHOO WKDW SHRSO  
WKDW WKH\ GR VR H[FOXVLYHO\ E J H F O L X D I  
WKH\ ZRXOG GLH RI KXQJHU GLG WKH\ QI  
)RU XV WKH VFDOH RI UHPXQH UDWL R Q I  
JRYHUQPHQW DO WXWHODJ, H Q B I Z & D S L W R D C  
&DSLWDO 7KHUHIRUH ZH VD\ WKDW DOC  
WKH HYHQW WR MXVWLI\ LQM XVWLFHV D\  
WKHP LQWR FRQVLGH UDWL R Q

1HLWKHU ZLOO WKH\ IDLO WR WHOO XV  
EH DQ LPSURYHPHQW ' 3 V W W R X I O S D A H H E F M

DUWLVDQV UHFHLYLQJ D ZDJH WZR RU W  
WKDQ WR VHH D PLQLVWHU UHFHLYLQJ L  
\HDUW ZRXOG EH D JUHDW VWHS WRZDUG  
)RU XV WKLW VWHS ZRXOG RHPWKH DHGU  
EHWZHHQ VLPSON DQG SURIHVVLRQDO ZI  
5HYROXWLRQ VDQFWLRQLQJ DQG UHFRJG  
VXEPLW WR QRZDGD\ EXW WKDW ZH QH  
LPLWDWLQJ WKRVH JHQWOHPHQ RI WKH )  
\$XJXVW dWK aghi WKH DEROLWLRQ RI IF  
VDQFWLRQH G WKHVH VDPH ULJKWV E\ LP  
FRPSHQVDWH WKH QREOHPHQ SODFLQJ  
5HYROXWLRQ ,W ZRXOG PHDQ LPLWDWLQ  
SURFODLPHG DW WKH WLPH RI WKH HPD  
VKRXOG KHQFHIRUWK EHKDQJIRURP W\K\Q  
FRQVLGHUHG DV EHQHQJLQJ WR WKH VHI  
2U HOVH WR WDNH D EHWWHU NQRZQ F  
GHFLGHG WR SD\ PHPEHUV RM W\HG ZRPD  
)HGHUDWHV RQ WKH UDESDUKWV GHFHLVRI  
DQ DFW RI VXSHULRU, QHUPHWDWARP PXTQ  
WKH IRUPHU LQHTXDOLW\ EHW\*ZMHQ QPH  
JRYHUQH G &RPLQJ IURP DQ 2SSRUWXQL'  
GHFLVLRQ ZRXOG KDYH DSSHUHG DGPLI  
RZQ UHYROXWLRQDU\ SULQFLSOHV ZKHQ  
8QGHU RXU H[LVWLQJ VRFLDO V\WHP  
\HDU ZKLOH D ZRUNPDQ PXVW FRQWHQW K  
IRUHPDQ LV SDLG WZR RU WKUHH WLPHV  
ZRUNPHQ WKHUH LV HYDUGDU DQZWLRR W  
G ZH GLVDSSURYH RI WKH KLJK VDODU\  
GLHUHQFH EHWZHHW ZKHUIN DQ DQG WR  
\$QG ZH VBZQ ZLWK WKH SULYLOHJHV RI  
RI ELUWUH DQDUFKLVWV SUHFLVHO\ EF  
7KH\ UHYROW XV DOUHDG\ LQRW DGVZHXW  
WKHP LQ D VRFLHW\ WKDW EHJDQ E\ SUR  
7KLV LV ZK\ VRPH FROOHFWLYLVWV XQ  
PDLQWDLQLQJ D VFDOH RI ZDJHV LQ D VI  
5HYROXWLRQ KDVWHQ WR SURFODLP HT

GLLFXOWLHV DQG WKHLU HTXDOLW\ RI Z  
8WRSLD DV WKH VFDOH RI ZDJHV RI RWK  
\$ VRFLHW\ KDYLQJ WDNHQ SRVVHVVLQR  
SURFODLPHG WKH ULJZWRMHDYDQ WRDWKL  
WDNHQ LQ SZLROX EHQERLPS HOOHG WR DED  
ZKHWKHU LQ FXUQRWDFV RU ODERXU

, 9

7KH FROOHFWLNDVWDFRUGLQJLVORRWLKH  
DFFRUGLQJ WR KLV VKDUH RITKHUWLKHON  
H[SHGLHQW WR SXW WKLVSULQFLSOH LG  
5HYROXWLRQ ZLOO KDYH PDGH DOO LQV\  
%XW ZH WKLQN WKDW LI WKH 6RFLDO 5H  
SURFODLPLQJ VXFK D SULQFLSOH LW ZR  
PHDQ OHDYLQJ WKH VRFLDO SUREOHP Z  
ZLWK XQVROYHG

2I FRXUVH LQ D VRFLHW\ OLNH RXUV L  
KH LV UHPXQHWDWHG WKLVSULQFLSOH  
IRU MXVWLFH %XW LQ UHDOLW\ LW LV R  
SURFODLPLQJ WKLVSULQFLSOH WKDW ZI  
LQHTXDOLWLHV DQG DOO WKH DERPLQDV  
PRPHQW ZRUN GRQH EHJDQ WRUEHQDSSUI  
RI ZDJH WKH GD\ LW ZDV DJUHHG XSRQ  
KH VKRXOG EH DEOH WR VHFXUH WR KLP  
&DSLWDOLVW 6RFLHW\ ZDV DV JRRG DV Z  
SULQFLSOH

6KDOO ZH WKHQ UHWXUQ WR RXU VWD  
HYROXWLRQ DJDLQ" 2XU WKHRULVWV GH  
5HYROXWLRQ ZH PDLQWDLQ PXVW EH FI  
EORRG DQG KDYH WR EH EHJXQ RYHU D  
6HUYLEFHV UHQGHUHQKWRZRNHLV\IDFW  
VHUYEDQQRMDXHG LQKPRQHFHQ EH QR H

YDOXH RI ZKDW KDV EHHQ ZURQJO\ WHU  
LQ WHUPV RI SURGXFWLRQ ,I WZR LQGL'  
KRXUV ~~DHDD~~\ LQ \H ~~DHUR~~ ~~RQW~~ ~~ZRW~~ ~~NG~~ IZIKLFK L  
WKHP ZH PD\ VD\ WKDW RQ WKH ZKROH '  
HTXLYDOHQW %XW ZH FDQQRW GLYLGH '  
SDUWLFX ~~KORXU~~ ~~BUG~~ ~~D~~ LQXWH RI ZRUN RI WKH '  
GD\RQH ~~KRXU~~ ~~B~~ QH PLQXWH RI WKH RWKHU  
: H PD\ URXJKO\ VD\ WKDW WKH PDQ ZK  
KLPVHOI RI OHLVXUH GXULQJ WHQ KRXU\  
WKH RQH ZKR KDV RQO\ GHSULYHG KLPV  
ZKR KDV QRW GHSULYHG KLPVHOI DW DO  
GXULQJ WZR KRXUV DQG VD\ WKDW WKH  
WZLFH DV PXFK DV WKH \LHOG RI DQRWK  
KRX ~~D~~ QG UHPXQH UDWH WKH WZR LQ SURS  
LV FRPSOH[ ~~LQQL~~ ~~D~~ ~~G~~ ~~U~~ ~~L~~ ~~F~~ ~~W~~ ~~D~~ ~~W~~ ~~X~~ ~~U~~ ~~H~~ LQ WKH Z  
ZRXOG EH LJQRULQJ WR ZKDW H[WHQW D  
DQG WKH SUHVHQW ODERXU RI VRFLHW\  
RXUVHOYHV WR EH OLYLQJ LQ WKH 6WRQ  
VWHHO

,I \RX HQWHU D PRGHUQ FRDO ~~PJHQRI~~ \ ~~B~~ X  
PDFKLQH WKDW UDLVHV DQG ORZHUV D F  
VWRSV DQG UHYHUVHV WKH FRXUVH RI W  
UHYHUVHV LWV FRXUVH LQ WKH WZLQNOI  
GRZQZDUGV LQWR WKH GHSWKV RI WKH \  
KH IROORZV ZLWK KLV H\HV IL[HG RQ DQ  
VFDOH DW ZKLFK SRLQW RI WKH VKDIW '  
DQG DV VRRQ DV WKH LQGLFDWRU KDV U  
WKH FRXUVH RI WKH FDJH QRW D \DUG ~~k~~  
\$QG QR VRRQHU KDYH WKH FROOLHUV XC  
HPSW\ RQH V LQVWHDG WKDQ KH UHYHU\  
EDFN LQWR VSDFH

'XULQJ HLJKW RU WHQ FRQVHFXWLYH K  
VWUDLQ RI DWWHQWLRQ 6KRXOG KLV EU  
LQHYLWDEO\ VWUL ~~B~~ ~~H~~ ~~D~~ ~~D~~ ~~N~~ ~~D~~ ~~L~~ ~~Q~~ ~~W~~ ~~W~~ ~~Z~~ ~~W~~ ~~K~~ ~~H~~ ~~I~~ ~~O~~ ~~M~~ ~~D~~ ~~V~~  
PHQ DQG SXW D VWRS WR DOO ZRUN LQ  
DW HDFK WRX ~~FKK~~ ~~R~~ ~~I~~ ~~H~~ ~~V~~ ~~W~~ ~~H~~ ~~D~~ ~~H~~ ~~W~~ ~~L~~ ~~H~~ ~~U~~ LQ RXU  
ZRXOG EH UHGXFHG IURP WZHQW\ WR ILI



VOHSHUV DV WKH VWRG ~~EBXV~~ HGUWZIDQ WW U  
WKH HQJLQHHU RQ WKH ORFRPRWLYH" 7K  
WKHP SDVV E\" 7KH VZLWFKPDQ ZKR WUD  
DQRWKHU"

\$JDLQ WR ZKRP GR ZH RZH WKH WUDQ\  
HQJLQHHU ZKRIR ~~EPVGLQVWVWOWH~~ H FDEOH  
ZKLOH OHDUQHG PHQ RI VFLHQFH GHFOD  
WKH OHDUQHG SK\~~ZKRDDGJHLRHLGDSKDW~~ W  
DVLGH IRU RWKHUV DV WKLQ DV D ZDONL  
IURP QRERG\~~NQRZV~~ ZKHUH ZKR VSHQW  
PLQXWHO\~~H[DPLQLQJ~~ HYHU\~~\DUG~~ RI WKH  
VKDUHKROGHUV RI VWHDPVKLS FRPSDQL  
QRQFRQGXFWLQJ ZUDSSHU RI WKH FDEOI

\$QG LQ D ZLGHU VSKHUH WKH WUXHUMS  
DQG LWV DFFLGHQWV FDQQRW HDFK RQI  
KLP VR JUHDW D VHUYLFH WKDW ZH VKR\  
ZHUH PHQWLRQHG" 7KH VHUYLFH PD\~~KD~~  
ZRUG VSRNHQ DW WKH ULJKW WLPH RU I  
GHYRWLRQ DQG ZH DUH JRLQJ WR DSSU  
<sup>3</sup>ODE ~~QRW~~ HV"

<sup>3</sup>7KH ZRUNV RI HDFK ' %XW KXPdq VRFL  
WZR FRQVHFXWLYH JHQHUDWLRQV LI HYH  
WKDW IRU ZKLFK KH LV SDLG LQ FRLQ LI  
ZRXOG VRRQ EHFRRPH H[WLQFW LI PRWKH  
FDUH RI WKHLU FKLOGUHQ LIZ ~~EPVGLQVWVWOWH~~  
DQ HTXLYDOHQW UHZDUG LI PHQ GLG QF  
QR UHZDUG

,I PLGGOH FODVV VRFLHW\~~LV~~ GHFD\~~LQ~~  
ZKLFK ZH FD ~~QHQZLWKRHW~~ DWWD FNLQJ SD\  
KDWFKHW LW LV SUHFLVHO\~~E~~HFDXVH ZH  
EHFDXVH ZH KDYH OHW RXJLW ~~HLQGLQJ~~ ~~EPVGLQVWVWOWH~~  
EHFDXVH ZH KDYH DLPHG DW WXUQLQJ V  
R ~~CHLQV~~ GLW

\$IWHU DOO WKH &ROOHFWLYLVWV NQR  
XQGHUVWDQG WKDW D VRFLHW\~~FRXOG~~ Q  
<sup>3</sup>(DFK DFFRUGLQJ WR KLV GH ~~HLQGLQJ~~ ~~EPVGLQVWVWOWH~~  
QRW VSHD ~~NWKHZ~~ ~~EPVGLQVWVWOWH~~ V RI WKH LQGLYLG\~~X~~

WR ZKLVNWKXV 'H 3DHSW WHO ~~OWKXIVHPZKHG~~  
, QGLYLGXDOLVW ~~OSGLIQEFVSDHSCU~~ VRFLDO  
LQWHUYHQWLRQ IRU WKH HGXFDWLRQ RI  
PDLQWHQDQFH DQG ORGJUDQL]DWLRQ ~~EIRU~~  
LQILUP DQG WKH VLFN IRU ~~WFWKHHDVGH~~  
D PDQRIIDRWKHU RI WKUHH FKLOGUHQ K  
WZHQRKH\ NQRZ WKDW WKH ZRPDQ ZKR V  
VOHHSOHVV QLJKWV DW LWZRU ~~UDHWGWIKHHP~~ DF  
VOHSW SH ~~KFHIXGEP~~ WR WDNH LQ WKDW  
PD\EH E\ GLQW RI RY ~~HUDREJN~~ ~~IIQEDVSDFELOHW~~  
ZRUDV WKR VH ZKR KDYH VSHQW WKHLU W  
<sup>3</sup>ODE ~~QRW~~ WHV' LQ WKH SULYLOHJHG FDUHH  
7KH\ DUH HDJHU WR WHPSHU WKHLU SU  
WR PDLQWDLQ DQG EULQJ XS LWV FKL ~~W~~  
GR ~~XCFWZGLVOO~~ EH WKH PHDVXUH RI WKH FR  
ZLWK WR WHPSHU WKH SULQFLSOH RI GI  
& KDUE ~~WDLV~~ ~~DLV~~ & KUL ~~V~~ ~~DLQ~~ ~~HF~~ ~~KB~~ ~~U~~ ~~WK~~ ~~V~~  
WLPH 7KH\ EHOLHYH LQ LPSURYLQJ ~~FWKH~~  
ROG DJH DQG ~~V~~ ~~VRND~~ ~~VQWRS~~ ~~WBU~~ ~~EB~~ ~~VSULQFLS~~  
FDQQRW \HW WKURZ DVLGH WKH LGHD RI  
7KXV DIWHU KDYLQJ GHQLHG & RPPXQL'  
DW WKH <sup>2</sup> ~~3~~ ~~TRU~~ ~~P~~ ~~D~~ ~~G~~ ~~E~~ ~~D~~ ~~FFRUGL~~ <sup>2</sup> ~~Q~~ ~~W~~ ~~K~~ ~~W~~ ~~R~~ ~~H~~ ~~K~~ ~~L~~ ~~W~~ ~~H~~ ~~O~~ ~~M~~  
GLVFRYHU WKD ~~R~~ ~~W~~ ~~W~~ ~~K~~ ~~H~~ ~~Q~~ ~~K~~ ~~B~~ ~~P~~ ~~H~~ ~~W~~ ~~R~~ ~~U~~ ~~Q~~ ~~J~~ ~~W~~ ~~K~~ ~~H~~  
ZKLFK WKH\ QRZ DGPLW 2QO\ LW LV IRU  
WR YHULI\ LI WKH QHHGV DUH QRW GLVS  
7KH 6WDWH ZLOO ~~7~~ ~~K~~ ~~H~~ ~~O~~ ~~F~~ ~~H~~ ~~R~~ ~~X~~ ~~W~~ ~~R~~ ~~F~~ ~~K~~ ~~H~~ ~~D~~ ~~I~~ ~~Z~~ ~~Q~~ ~~I~~  
ZRUNKRXVH LV EXW D VVHS  
7KHUH LV EX ~~W~~ ~~U~~ ~~H~~ ~~Q~~ ~~E~~ ~~H~~ ~~J~~ ~~K~~ ~~E~~ ~~M~~ ~~F~~ ~~G~~ ~~L~~ ~~V~~ ~~H~~ ~~H~~ ~~Y~~ ~~H~~ ~~Q~~ ~~W~~  
DJDLQVW ZKRP ZH DUH LQ UHY ~~R~~ ~~O~~ ~~M~~ ~~P~~ ~~S~~ ~~K~~ ~~H~~ ~~D~~ ~~U~~ ~~I~~  
LQGLYLGXDOLVW SULQFLSOHV VKH WRR  
FRPPXQLVW GLUHFWRQ DQG XQGHU WK  
6KH WRR GLVWULEXWHV KDOISHQQ\ GI  
VKRSV EX ~~L~~ ~~G~~ ~~B~~ ~~M~~ ~~K~~ ~~R~~ ~~V~~ ~~S~~ ~~H~~ ~~W~~ ~~D~~ ~~E~~ ~~D~~ ~~G~~ ~~R~~ ~~Q~~ ~~H~~ ~~V~~ ~~E~~ ~~X~~ ~~W~~  
RQ ~~4~~ ~~W~~ ~~R~~ ~~S~~ ~~U~~ ~~H~~ ~~Y~~ ~~H~~ ~~Q~~ ~~W~~ ~~W~~ ~~K~~ ~~H~~ ~~U~~ ~~D~~ ~~Y~~ ~~D~~ ~~J~~ ~~H~~ ~~V~~ ~~R~~ ~~I~~ ~~F~~ ~~R~~ ~~Q~~ ~~W~~ ~~E~~  
SDLG WKH KR ~~X~~ ~~U~~ ~~K~~ ~~H~~ ~~B~~ ~~W~~ ~~E~~ ~~D~~ ~~E~~ ~~R~~ ~~W~~ ~~K~~ ~~H~~ ~~F~~ ~~K~~ ~~L~~ ~~O~~ ~~G~~ ~~U~~ ~~H~~ ~~Q~~  
WDNHV WKHLU QHHGV LQWR FRQVLGHU\





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& ^ † Œ Ž † ‰ • , ^ † z † } 3 ‹ ^ } Ž | • , ^ †

/RRNLQJ DW VRFLHWIDQQJEDWWRCBIRUCRQWDF( WKDQ WKDW RI DOO WIKRU ZXWKR DUW DIURE WR UHDFK D LQHWMBRGLRWEHJLQQQLQJ E\ ' WKH LQGLYLRQDZ WKH VDPH PHWKRGL LQ VWXG\ WKH QHHGV RI WKH LQGLYLGXDOV WKHP EHIRUH GLVFXVVLQD [DURLCXQFWRYQ VR RQ \$W ILUMWVQFKWPDKDISSHIDU WULI DOO WKH FDFLDQV 3RRIORWLFDO (FRQRP\ ,I \RX RSHQ WKH ZRUNV RI DQ\ HFRQRP ‰ ‹ ^ } Ž | • , † HE\ WKH DQDO\VLV RI WKH PHD( FUHDWLRQ RI ZHDOWWKGLMCLWWRQDRWIKIOHE DFFXPXODWLRQ RI FDSLWDO )URP \$GDP DORQJ WKHVH OLQHV 2QO\ LQ WKH ODW | ^ † Œ Ž † ‰ • WKDW LVI WKRH VHDQV UHVURWH WR VDWLV\ WKH QHHGV RI WKH LQGLYLG WKHPVHOYHV WR H[SODLYLQHJKRZRLFW RQH DQRWKHU IRU WKHLU SRVVHVVLQ 3HUKDSV \RX ZLOO VD\ WKLVLV ORJLFD FUHDWH WKH ZKHUHZLWKDO WR VDWLV\ PXVW \RX QRW IHHDVWLVWQRWQRFRHLW'L:W KXQW WR UDLVH FDWWOH WR FXOWLYD' LQYHQW PDFKLQHU\" ,V LW QRW WKH VW SURGXFWVWQ "WKH OHDVW LW ZRXOG WKI E\ FRQVLGHULQJ WKH QHHGV DQG DIWHI RXJKW WROELHULQ RUGHU WR VDWLV\

7KLV LV SUHFLVHO\ ZKDW ZH PHDQ WR  
%XW DV VRRQ DV ZH ORRN DW 3ROLWLF  
HQWLUHO\ FKDQJHV LWV DVSHFW ,W FHI  
EHFRPWHLIDDFG ZH PD\ GHILQH WKLVW XGL  
QHHGV RI PDQNLQG DQG WKH PHDQV RI  
ZDVWH RI KXP DVVHWH QDPRVLRORGRV  
FRQVWLWXWHV D SDUDOOHO VFLHQFH WI  
LV WKH VWXG\ RI WKH QHHGV RI SODQWV  
DGYDQWDJHRXV ZD\ RI VDWLVI\LQJ WKH  
VFLHQFHV WKH HFRQRP\ RI KXPDQ VRFL  
VHULHV RI ELRORJLFDO VFLHQFHV ERGMH  
: H VDKHUH DUH KXPDQ EHLQ\$ OXQLWKH  
QHHG RI OLYLQJ LQ KHDV WKWKORVORV JH  
WKH\ UHTXLUH D PRUH RU OHTKHFTRPHRUV  
ZKHWHUNLQJ WKH SUHVHQW FDSDFLW\ R  
KDYH D KRXVH RI KLV RZQ" DQG ZKDW LV  
\$QG DV VRRQ DVVHWHV VRRQ ZH VHH WKD\  
FRXOG SHUIHFWO\ ZHOO KDYH D FRPIRUV  
LQ %HOJLXP RU LQ3XOOR DQ &LTKLYDOH  
QXPEHU RI GD\ VIZRHNWRXO GGD SUHW  
ILWWHG XS DQG OLJKWHG E\ HOHFWULFL  
%XW QLQH WHQWKV RI (XURSHDQV KDI  
EHFDXVH DW DOO WLPHV FRPPRQ SHRSO  
VDWLVI\ WKH QHHGV RI WKHLU UXOHUV  
PRQH\ WR EXLOG RU WR KDYH EXLOW W  
KDYH QR KRXVHV DQG ZLOO LQKDELW KI  
XQFKDQJHG

,W LV WKXV VHHQ WKDW RXU PHWKRG L  
ZKR LPPRUWDOLJH VZKHS VRRGFXDFOLRQ DQG  
QXPEHU RI KRXVHV GHPHQVHMHDUWHUW  
QXPEHU RI WKH QLWZRRXV VDKORXWHV HHW  
WHQWKV RIP(XVORSHLOQVKRYHOV

/HW XV SDVV RQ WR IRRG \$IWHU KDYLC  
IURP WKH GLYLHFRQRPIODVEXUHOO XV W  
UHTXLUHV WKDW VRPH PHQ VKRXOG ZRUI  
PDQXIDFWXUH )DUPHUV SURGXFLQJ VR F

EHLQJ FDUULHG RQKLG D Q DIO D HZ DAKH VDC  
RU WKH VXUSOXV YDOXH WKH ZDJHV W  
%XW DIWHU KDYLQJ IZB ODZHH Q RACKH QVKB  
DVN WKHP 3+RZ LV LW WKDW PLOOLRQV  
ZKHQ HYHU\ IDPLOLFRN QV ZUKRZD WXW B Q B  
HYHQ D KXQGUHG SHRSOH DQQXDOO" ' W  
DQW<sup>2</sup>IGHLF LVLRQ RZDQB ERXU USOXH WDDUJLHL  
WKH VDPH FRQFOXVLRQILW KID QWS WRGXFVW  
FRQFOXVLRQ ZKLFK LI WUXH GRHV QRW  
PDQ E\ KLV ODERXU SURGXFH WKH EUHD  
WKDW KLQGHUV KLP"'

+HUH DUH ce` `` `` (XURSHDQV 7KH\ C  
PHDW ZLQH PLON HJJV 7DQG QEKHGWVR F  
VR PXFK FORWKLQJ 7KLV LV WKH PLQLP;  
WKLV" DQG LI WKFLHFOW QZLLOXV XIEH OHI  
DPXVHPHQW "ZRUG IRU HYHU\WKLQJ WKD  
FDWHJRU\ RI DEVROXWH QHFHVVLV WLVKDYW  
KLQGHUV WKHP JRLQJ DKHDG" :KDW PXV\  
WLPH WKDW LV QHHGHG WR DFKLHYH VXI  
ORVH VLJKW RI WK<sup>2</sup>W DHPV BWS V RDXVFLVLRQ B  
, I WKH PRVW LPSHULRXV QHHGV<sup>2</sup>:RIDVDP  
ZH GR WR LQFUHDVH WKH SURGXFWLYLW  
OLJKW LW QRW EH WKDW SURGXFWLVROQK  
VWUD\HG LQ DQ DEVROXWHO\JZORQD WGLRU  
IDXOW" \$QG DV ZH FDQ SURYH WKDW VXF  
UHDUJLH SURGXFWLRQ VR DV WR UHDOO  
7KLV VHHPV WR XV WKH RQO\ ULJKW ZD  
ZRXOG DOORZ RI 3ROLWLFDO<sup>2</sup> VFRQ B PLHQ  
6RFLDO 3K\VLRO RJ\

, W LV HYLGHQW WKDW VR ORQJLDFLWUI  
DW SUHVHQW E\ FLYLOLJHG QDWLRQV E\  
KDUGO\ VWDWH IDFWV RWKHUZLVH WKDQ  
VD\DV D GHPFOH SWSV WHDORJR XV WR WKH  
=RRORJ\ DQG %WRWLD QKLV FKDSWHU ZHUH  
OLJKW RQ WKH HERQKFDWR L W QH FHVU  
WKH FKDSWHU ZRXOG JDLQ LQ SUHFLVLR  
FOHDUO\ VKRZ WKH IULJKW XCG ZD VWKIHRS

DQG LW ZRXOG SURYH WKDW DV ORQJ DV  
ZLOO QHYHU EH VDWLVILHG  
7KH SRLQWZRIWHLHZZRXOG EH HQWLUHO  
WKDW ZHDYHV VR PDQ\ \DUGV RI FORWQ  
EHKLQG WKH VDIH LQ ZKLFK GLYLGHQGV  
DUWLVDQ RI SURGXFWLRQ PRUH RIWHQ  
SUHSDUHG IRUWKHDO:VR XQGHUVWDQ  
ZURQJ WKH VR FDOOHG 'ODZV' RI YDOXI  
H[SODQDWRQ RI HYHQWV DV WKH\ KDS  
WR SDVMHUVG\ ZKHQ SURQHWLQOXLFV  
PHHW DOO QHHGV RI VRFLHW\

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7KHUH LV QRW RQH VLQJOH SULQFLSOH I  
LVV DVSHFW LI \RX ORRN DW LW IURP RX  
7DNH IRU LQVWDQFH RYHUSURGXFWLR  
RXU HDUV ,V WKHUH D VLQJOH HFRQRPL  
DFDGHPLFDO KRQRXUV ZKRXWVQSWRXI  
HFRQRPLF FULVHV DUHVKDWWRDHJLSYHR  
FRWRQ PRUH FORWK PRUH ZDWFKHV [  
QRW DOO RI XV WKXQGHUHGDJDLQVW\  
REVWLQDWHO\EHQW RQ SURGXFLQJ PRU  
+RZHYRQ FDUHIXO H[DPLQDWRQ DOO V  
IDFW LV WKHUH RQH VLQJOH FRPPRGLW'  
SURGXFHG LQ JUHDWHU TXDQWLW\ WKDQ  
FRPPRGLWLHV VHQW RXW E\JFRVFDVUHLHDV  
VHH WKDW QHDOOLQOXIDKHSWRVXFMGR  
RI WKH FRXQWULHV H[SRUWLQJ WKHP  
,W LV QRW D VXUSOXV RI ZKHDW WKDW  
PRVW SOHQWLIXO KDUYHVWV RI ZKHDW [  
HQRXJK WKH SRSXODWRQ \$QG DV D UX  
ZKDW KH DFWXDOO\ QHHGV ZKHQ KH VHO

,W LV QRW D VXUSOXV RI FRDO WKDW ( JOREH EHFDXVH RQO\ W KUHH TXDUWHUV DQQXDUH PDLQV IRU KRPH GRPHVWLF FRQ (QJOLVKPHQ DUH GHSULYRIG R DYHURLOQ V ERLO D IHZ YHJHWDEOHV ,Q IDFW VHWV (QJODQG ZKLFK H[SRUWV PRUHWKDOJDC LQ XQLYHURV DZRXWH SURGXIEWLROWLO\ VXS HUSM[FHHG WKH QHHGV IRW W KHQF R P PQRQ UDJV WKDW SDVV IRU ZHDULQJ DSSDUHO WKH 8QLWHG .LQJGRP ZH DUH OHG WR D H[SRUWHG ZRXOG QRWUHQHWIGHV ZKRVKH

\$V D UXOH LW LV QRW D VXUSOXV WKDV RULJLQYKONIDEOH RI WKH EDUHIRRWHG VI ZDV IRUPHUO\ RI LQGLM[SRXODF V VVDFVDC) \$QG ZH GR VR EHFDXVH WKH ZRUNPHQ F KDYH SUBG&FSDG EHVQWHDVQWVHWKH WKH F WKH EDQNHU

1RW RQO\ GRJURWKHU HYHUG RI FRPIRUW WKH VWULFW QHFHVVLWLHV RI OLIH DUH SURGXFWQREMLGVHVDW OHDVW QRW LQ W WKHRULVWV RI 3ROLWLFDO (FRQRP\

7DNLQJ DQRWQDUHSRQWLVWV WHOO XV ODZ 3ODQ SURGXFHV PRUH WKDQ KH FRC SURFHGGV RI KLV WRLO WKHUH UHPDLQ SURGXFHV HQRXJK WR IHHG VHYHUDO ID

)RU XV WKLV RIW UHSHDWHG VHQWHQF JHQHUDWLRQ OHDYHV VRPHWKLQJ WR IX IRU H[DPSON D IDUPHU SODQWV D W B H R D KXQGUHG \HDUV DQG ZKRVH IUXLWV Z JUDQGFKLOGUHQ 2U KHJEQHMDULODDIEZ Q KHULWDJH RI IXWXUH JHQHUDWLRQV KDV EULGJHV FDQDOV KLV KRXVH DQG KLV I WR VXFFHHGLQJ JHQHUDWLRQV

%XW WKLV LV QRW ZUBWROPHWQW WK PRUH WQDIFQVXPH 5DWKHU VKRXOG WK DOZD\ V WDNHQJHURFDLHP DI QDV SURGXFF WLWKH DQG WKH ODQGORUG IRU UHQW

IRUPHUO\ FRQVXPHG ZKDYWH VZKBWSZURVG XFI  
XQIRUHVHHQ DFFLGHQWVIRUHM [SDHQLMREX'  
ZKR WRGD\ DUH FRPSHOOHG PWRDQIGYWRH  
UHPDLQGHU KDYLQJ EHHQ WDNHQ IURP V  
SULHVW DQG WKH XVXUHU

7KHUHIRUH ZH SUHIHU WR VDWKHL DGN  
ZRUNHU DFRQVPRHQOHVRGAKEDICDVKH\SKH  
FRPSHWHGHOO PRVW RI WKH SURGXFH R  
EXW D VPDOO SRUWLRQ RI LW

/HW XV DOVR REVHUYH WKDW LI WKH QI  
VWUWLQJ SRLQW RI ZKUFDRQRWLFDLCOHW  
&RPPXQLVDDQJRWLRQ ZKLFK HQDEOHV X  
PRVW WKRURXJK DQGHORRQLZFDVVDW  
PHWKRGRISURGXFWLRQ DQG DLP DW JI  
ZKHWKHU RXU SURGXFWLRQ FRUUVSRQ  
QHFHVVDULO\ DUULYH DW &DSLWBRQKVEH  
WZRIHQW IRUPV RI WKH SUHVHQW ZDJI

,Q IDFW ZKHQ ZH FRQVLGHU WKH QHIG  
WKH PHDQV ZKLFK PDQ KDV UHVRUWHG V  
YDULHG SKDVHV RI GHYHORSPHQW ZH V  
RXURHUV LQVWHDG RI SURGXFLQJ KDSK  
HYLGHQW WKDW WKH DSSURSULDWLRQ E  
WUDQVPLWWHG IURP RQHVIDQWWRQV  
\$QG ZH VHH DV D IDFW WKDW RZLQJ WR  
TXDUWHUV RQRWFLHWLHGDGHVRWKDWWKH  
VWUHQJWK LQ XVHOHVW WKLQJV LV RQO\

:H GLVFRYHURWKDW WKH PRVW DGYDQW  
FRPPRGLWLHV ZRXOG EH IRU HDFK RI W  
QHGV ZKLFK DUH WKH PRVW SUHVVLQJ  
LQ XVH' RI DFRPPRGLW\ GRHV QRW GHS  
EHHQDPHG EXW RQ WKH VDDOLMGGFWLRQ

&RPPXQLVDDQJRWLRQ ZKLFK ZI  
DYLHZ RI &RQVXPSWLRQ 3URGXFWLRQ  
WKUHIRUH EFRPHV WKH ORJLFDQ FRQ\  
WKLQJ RQO\ RQH LQ RXU RSLQLRQ WK  
\$VRFLHW\ WKDW ZLOO VDWLVI\ WKH QF  
RJDQLJH SURGXFWLRQ WR DQVZHU WR W

VZHHS RI VHYHUDO SUHMX ~~DLFG~~ VLUR ~~QFR~~ U  
RIWHQ SUHDFKH<sup>2</sup>G7 ~~E~~ H H E R I Q V L R L Q W K I Z B U E R X L  
DUH JRLQJ WR GLVFXVV LQ WKH QH[W FK

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3ROLWLFDO (FRQRP\ KDV DOZD\ V FRQILQ  
 VRFLDQG MXVWLI\LQJ WKHP LQ WKH LQW  
 LW SURQRXQFHV LWVHOI LQ IDYRXU+RDIYW  
 IRXQG LW SURILWDEOH WR SDSQWIDSOOLWW  
 /RRN DW WKH YLOODJH VPLWK VDLG \$G  
 3ROLWLFDO,(FRQRPV QHYHU EHHQ DFFXV  
 RQO\ VXFFHHG EJKDUVZRRR DWURDQGXH  
 WKHQ WKH\ ZLOO EH EDG %XW LI WKLV \  
 QDLOV KH ZLOO HDVLO\ VXSSO\ DV \$DQ\  
 6PLWK KDVWHQH<sup>2</sup>3WRYWKH OFRFFOULRJE  
 VSHFLDOL]LQJ OHW XV KDYH VPLWKV ZK  
 SRLQWV RI QDLOV DQG E\ WKLVHPVDDO/O;  
 ULFK '

7KDW D VPLWK FRQGHPQHG IRU OLIH WI  
 LQWHUHVW LQ KLV ZRUN WKDW KH ZRXO  
 ZLWK KLV OLPLWHG KDQGLFUDIW WKDW  
 WZHOYH DQG WKDW KLV ZDJHV ZRXOG II  
 HDV\ WR UHSODFH KLP E\ DQ DSSUHQWLF  
 H[FOD<sup>2</sup>3PHGJ OLYH WKH GLYKLVLRQ RWKHDEI  
 ZLOO HQULFK WKH QDWLRQ ' \$QG DOO M  
 \$QG ODWHU RQ ZKHQ%DD6LEMPJDDQWRUKQ  
 GLYKLVLRQ RQVDEBQURI HQULFKLQJ WKH  
 ULFK DQG WKDWWRWKH ZRRUNHG IRU OLIH \  
 SDUW RID SLQ JURZV VWZSLDWDQIGLVBLO  
 HFRQRPLVWV SURSRVH" 1RWKLQJ 7KH\ G  
 OLIHORQJ JULQG DW RQH DQG WKH VDPH  
 KLV LQWHOOLJHQFH DQG KLV VSLULWDRI  
 YDULHW\ RI RFFXSDWLRQV ZRXOG UHVXO  
 SURGXFWLYLW\ RID QDWLRQ %XW WKLV



,I KRZHOYHDDUQHGHFRQRPLVWVZHUIWI  
SHUPDQHQW DQG RIWHQ KHUZHGLLW DWA DGO  
SUHDFK LW DV PXFK DV WKH\ SOHDVHG  
ILOWHU VQWQGVHQDQ SHUYHUW WKHP D  
GLYLVLRQ ~~SU~~ ~~DER~~ ~~XR~~ ~~UL~~ ~~Q~~ ~~W~~ ~~H~~ ~~M~~ ~~S~~ ~~R~~ ~~N~~ ~~H~~ ~~Q~~ ~~F~~ ~~R~~ ~~H~~ ~~G~~ ~~V~~ ~~V~~  
VLQFH VROYHG DOO PLGGOH FODVXLSQUR  
HFRQRPLVWV WKH\ YHQHUDWH WKH VDP  
7KXV ZH VHH PRVW VRFLDOLVWV HYHQ  
WKH PLVWDNHV RI HFRQRPLFDO VFLHQD  
WKHP ~~DER~~ ~~XR~~ ~~UL~~ ~~Q~~ ~~W~~ ~~H~~ ~~M~~ ~~S~~ ~~R~~ ~~N~~ ~~H~~ ~~Q~~ ~~F~~ ~~R~~ ~~H~~ ~~G~~ ~~V~~ ~~V~~  
DQVZHU WKDW WKH GLYLVLRQ RI ODERXL  
SLQV EHIRUH WKH 5HYROXWLRQ \RXU  
ZLOO QRW KDYH WR ZRUN ~~PER~~ ~~XUM~~ ~~WR~~ ~~KD~~ ~~ZL~~ ~~OL~~ ~~C~~  
VKDUSHQ SLQV DOO \RXU OLIH ZKLOH RI  
ZLOO HQDEOH \RX WR VKDUSHQ KXQGUHC  
OLIHWLPH DQG RWKHUV DJDLQ ZLOO EH  
OLWHUDWXUH ~~HW~~ ~~FR~~ ~~Q~~ ~~Z~~ ~~H~~ ~~H~~ ~~D~~ ~~R~~ ~~G~~ ~~D~~ ~~U~~ ~~W~~ ~~R~~ ~~V~~ ~~K~~ ~~D~~ ~~L~~  
ZDV ERUQ WR LQYHQW WKH LQRFXODWLR  
OHDYH \RX ERWK WR \RXU ~~W~~ ~~H~~ ~~O~~ ~~S~~ ~~H~~ ~~L~~ ~~F~~ ~~W~~ ~~L~~ ~~V~~ ~~H~~ ~~I~~  
SULQFLSOH VR QR ~~R~~ ~~EX~~ ~~UX~~ ~~W~~ ~~D~~ ~~OL~~ ~~R~~ ~~I~~ ~~F~~ ~~Q~~ ~~H~~ ~~W~~ ~~A~~ ~~R~~ ~~W~~  
PXFK KDUP WKDW ZH SURSRVH WR GLVF  
: H NQRZ WKH FRQVHTXHQFHV RI WKH G  
HYLGHQW WKDW ILUVW RI DOO ZH DUH  
SURGXFHUV ZKR FRQVXPH YHU\ OLWWOH  
WKH\ RQO\ GR SK\VLFDZRUN DQG ZKR  
UHPDLQ LQDFWLYH DQG RQ WKH RWKHU  
RU KDUGO\ DQ\WKLQJ KDYH WKH SULYLC  
WKLQN EDGO\ EHFDXVH WKH ZKROH ZRUC  
XQNQRZQ WR WKHP 7KHQ ZH KDYH WKH  
QRWKLQJ RI ~~Z~~ ~~E~~ ~~E~~ ~~H~~ ~~Q~~ ~~M~~ ~~K~~ ~~R~~ ~~V~~ ~~H~~ ZKR ZRUN DW  
HYHU\WKLQJ ~~DER~~ ~~XR~~ ~~UL~~ ~~Q~~ ~~W~~ ~~H~~ ~~M~~ ~~S~~ ~~R~~ ~~N~~ ~~H~~ ~~Q~~ ~~F~~ ~~R~~ ~~H~~ ~~G~~ ~~V~~ ~~V~~  
D PDFKLQH WKDW KH FDQQRW DQG PXVW  
KLP LI KLV DWWHQWLRQ IODJV IRU D PRF  
WR GR DZD\ ZLWK WKH DJULFXOWXUDO O  
GRHV RGG MREV WR WHQG D VWHDP SOR  
RI ODERXU PHDQV ODEHOOL ~~Q~~ ~~R~~ ~~D~~ ~~I~~ ~~Q~~ ~~W~~ ~~R~~ ~~W~~ ~~S~~ ~~F~~  
LQ IDFWRULHV VRPH WR EH IRUHPHQ LQ

EDVNHVWV LQ D SDUWLFXODU SDUW RI D I  
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GHVWUR\ WKH ORYH RI ZRUN DQG WKH FI  
EHJLQQLQJ RI PRGUDWLFQGXKXWURDFKLQF  
RXUVHOYHV VR PXFK

:KDW WKH\ KDYH GRQH IRU LQGLYLGXD  
+XPDQLW\ ZDV WR EH GLYLGHG LQWR QD  
VSHFLDZDZD ZH ZHUH WDXJKW ZDV GH  
(QJODQG WR VSLQ FRWWRQ %HOJLXP WF  
WUDLQ QXUVHV DQG JRYHFKQVHVSIVDWRUF  
D VSHFLDZDZDZD WR ZHDQH WIRPND\$X YHUF  
IDQF\ DUWLFOHWRFRQVPLVWZDMDLG DQ LF  
IRU SURGXFWLRQ DQG FRQVXPSWLRQ DC  
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+RZHYWKHVH JUHDW KRSHV YDQLVKHG  
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D PHWDOZRUNHWFROHD DVUORQJ DV RQO\  
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PDQXIDFWXUH IRU WKHPVHOYHV 7KH\ IR  
WKH\ IRUPHUO\ UHFHLYHG IURP RWKHU F  
LQ WKHLU WXUQ DLPHG DW HPDQFIESDXW  
6FLHQWLILF GLVFRYHULHV XQLYHUVDOJ  
KHQFHIRUWK LW ZDV XVHOHVW WR SD\ D  
HDVLO\ EH SURGXFHG DW KRPH \$QG QRZ  
UHYROXWLRQ VWULNHV D FUXVKLQJ EOR  
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LPSRUWDQFH 6KH WRRN LQ WKH VLWXDV  
DQG DGYDQWDJHV WR DFFRXQW 6KHDHOG  
LPSRVLQJ XSRQ KHU QHLJKERXUV KHU SU  
PDQXIDFWXUH DFFXPXODWHG ULFKHV XS  
%XW DV WKH PLGGOH FODVV 5HYROXWL  
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JRRGV DQG WZR WKLUGV RI WKHVH JRR(  
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)UDQFH LV WKHUHIRVHWORLQVWUWUWUUC  
VWULYHQ WR PRQRSROLJH FHUWDXEKEDVD  
UHDG\ PDGH FORWKHV DQG KDV UHDSHG  
RQ WKH SRLQW RI ORVLQM XWKLDP RQRQB  
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7UDYHOOLQJ HDVWZDUGV LQGLXWUHDU  
\*HUPDQ\ ZDV D WULEXWDU\ RI (QJODQG I  
FRPPRGLWLHV LQ WKH KLJKMULEDRQFRQ\  
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\*HUPDQ\ KDV FRJPSOLJWGHKHUWKROGXVZWIWF\

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ZRUNHURQ D D Q G O D W R K F R O W W U X F W W K H  
\*HUPDQ\ DGRSWHG LW H E K L Q L V E S O W I F F R W R H  
QHHGV RI L V X S S O W W K H I D F W R U L H V Z L W K  
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) U D Q F H K D Y H S U R J U H V V H G H D V W Z D U G  
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5 X V V L D W K U H H T X D U W H U V R I W K H L U R Q  
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(FRQRPLVWV KROG WKH FXVWRPV UHVS  
PDQXIDFWXUHG LQ 5XVVLD DUH VROG DW  
WDNLQJ QR FRJQLJDQFH RI IDWKHUODQG  
DFFRPSDQLHG E\ HQJLQHUV DQG IRUHP  
LQWURGXFHG LQ 5XVVLD DQG LQ 3RODQC  
H[FHOHQFH ZLWK WKH EHVW IURP (QJOI  
WRPRUP) PDQXIDFWXUH ZRXOG RQO\ JDLQ E  
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ZRROHQV IURP WKH\ VHW XS LQ VRXWKH  
LPPHQVH ZRRO IDFWRULHV VWRFNHG ZL  
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DQG ZRROHQ IDEULFV IURP (QJODQG )UI  
IDEULFDWHG DW KRPH ERWK LQ IDFWRU  
7KH PDLQ LQGXVWULHV QRW RQO\ PRYH  
WKH VRXWKHUQ \$HQQ QMLD WLRK ahh  
WKH SURJUHVV PDGH LQ ,WDOLDQ PDQXI  
DQ\ PLVWDNH DERXW LW WKH PXWXDO K  
FODVVHV KDV QR RWKHU RULJEDWDO V  
EHFRPLQJ DQ LQGXVWULDO FRXQWU\ ZK  
VSUXQJ LQWR LPSRUWDQFH DV D QHZ FH  
SHUIHFWHG PDFKLQHU\ DQG DSSO\LQJ W  
: H PLJKW DOVR PNDLQ - SURJUHVV LC  
EXW OHW XV UDWKHU WDNH %UD]LO DV E  
FXOWLYDWH FVWVRSRURVHWHUQ LWV UZ  
FORWK IURP (XURSH LQ H[FKDQJH ,Q IDF  
ZUHWFKHG OLWVOH FRWWRQG DFWRULHV  
FRWWRQ PLOOV SRVVHVVLQJ a e```` VS  
e```````` \DUGV RI WH[WLOHV RQ WKH PL  
(YHQ OH[LFR LV QRZ YHU\ VXFFHVVIXO I  
LQVWHDG RI LPSRUWLQJ LW IURP (XURSH  
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VSHFLDOLJDWLRQ RI QDWLRQDO LQGXVW  
: H DOO NQRZ WKH WKHRU\ WKH JUHDW  
FRORQLHV VHQGRVWRQMLBUHDOXQZBWKH  
WKH PRWKHUODQG \$QG WKH PRWKHUODQ

PDQXIDFWXUHG ZDUHV JHWV KHLG RD FKHU  
DQG HYHU\WKLQJ ZKLFK VKH, WRFR RQJHNI  
QRWKLQJ DQG QRQH WKH OHVV WKH DUV  
6XFK ZDV WKFVWZDRUWKH SUDFWLFH IR  
DQG ODQFKHVWHU IRUWXQHV ZHUH PDGH  
,QGLD 0XVXP LQ /RQGRQ XQKHDUG RI U  
%RPED\ E\ (QJOLVK PHUFKDQWV DUH WR  
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PDNLQJ FRWRQ FORWK LQ ,QGLD LWVHC  
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DQG H[SHUWV LQFRXOG UQRZQLQXDIHWKHF  
WKH PDFKLQHU\ VHQW IURP /LYHUSRRO Z  
DFFRXQW DQG PHUFKDQWV KDG WR DGD  
IXOO\ PDVWHUHG EHIRUH %ULWLVK ,QGL  
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&KLQD WR WKH 'XWFK ,QGLHV DQG WR  
RI WKH VDPH ZKLWH FRWRQVSRFRVQWZV  
(QJOLVK ZRUNPHQ DUH RIWHQ XQHPSOR\  
ZHDIH FRWRQ IRUPWKILQHU\DVW DW ZC  
VKRUW WKH LQWHOOLJHQW PDQXIDFWXU  
ZKHQ WKH\ ZLOO QRW NQRZ ZKDW WR GR  
ZRYH FRWRQ FORWK IRU H[SRUW IURP  
PRUH DQG PRUH HYLGHQW WKDW ,QGLD Z  
(QJODQG 7KHLFXQWLIDV LQ IXVLQJ WKH FF  
LQ ,QGLD KDYH EHHQ RYHUFPH DQG IR  
KDYH EHHQ EXLOW RQ WKH VKRUHV RI W  
&RORQLHV FRPSHWLQJ ZLWK WKH PRWK  
PDQXIDFWXUHG JRRGV VXFK LV WKH IDF  
WZHQLHWK FHQWXU\  
\$QG ZK\ VKRXOG ,QGLD QRW PDQXIDFWJ  
&DSL<sup>2</sup>WDXW" FDSLWDO JRHV ZKHUHYHU WKH  
H[SORLWHG .QRZOHGJH" %XW NQRZOHG.

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\$IWHU KDYLQJ JODQFHG DW QDWLRQDO L  
WXUQ WR VRPH VSHFLDO EUDQFKHV  
/HW XV WDNH VLON IRU H[DPSOH DQ H  
KDOI RI WKH QLQHWLHQW QREZVWZHU DPH )  
HPSRULXP RI WKH VLON WUDGH \$W ILUV  
)UDQFH WLOO OLWWOH E\ OILURVCS DLQH'  
\$XVWULD IURP WKH &DXFDVXV DQG IUR  
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/\RQV PDQXIDFWXUHG LPSRUWHG VLON z  
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YLOODJHV URXQG =XULFK %kOH EHFDPH  
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IURR/QV WR WHDQW WKHU SHUIHFWHG UHI  
DUW RI FRQYHUWLQJ VLON LQWR IDEULF'  
IROORZHG 7KHZLWKUWDERQMOZSRBNPHQ E  
IDFWRULHV 7KH 8QLWHG 6WDWHV GLG O  
\$QG WRGD\ WKH VLON WUDGH LVLONVB  
LQ \*HUPIDQ\$XVWULD LQ WKH 8QLWHG 6W  
UHFNRQHG WKDW RQHW WKHGLRQ)WDE FVL(  
ZLQW&DXFDVLDQ SHDVDQWV ZHDYH VLON  
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WR )UDQFHQDQZKLFH HQSRUWHG df`` `` ``  
RI VLON IDEULFV H[SRUWV QRZ RQO\ RQ  
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\$QG VR LW LV LQ DOO LQG X VWULHV %F  
FORWK LV PDGHLQGXVWULVDQ \$XVWULD  
6ZLW]HUODQG DQG WKH )UHQFK -XUD KD  
ZDWFKHV DUH PDGH HYHU\ZKHUH 6FRWO  
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VWHDPHUV &KHPLFDO LQG X VWU\ LV QR  
DFLG DQG VRGD DUH PDGH HYHQ LQ WKH  
: LQWHUUDFTXLHG HYHU\ZKHUH D ZI  
PRPHQW 6ZLW]HUODQG ZKLFK KDV QHLV  
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EHWWHU DQG FKHD SHU WKDQ (QJODQG  
7KH WHQGHQF\ RI WUDGH DV IRU DOO  
(YHU\ QDWLRQ ILQGV LW DGYDQWDJHRX  
JUHDWHV SRVLEOH YDULHW\ RI IDFWR  
HFRQRPLVWV VSRUWDLQV HQULFKI  
EXW LV QRZ QR ORQJHU RI IDVLRW  
HYHU\ UHJLRQ HYHU\ QDWLRQ WR JURZ  
DQG WR PDQXIDFWXUH DW KRPH PRVW RI  
GLYHUVLW\ LV WKH VXUHVW SOHGJH RI V  
PXWXDO FRRSHUDWLRQ DQG WKH PRYLQ  
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\$JULFXOWXUH FDQ RQO\ SURVSHU LQ S  
GRHV D VLQJOH IDFWRU\ DSSHU WKDVI  
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DJULFXOWXUH EHFDXVH IDFWRQWHUX ZLRV  
ILQLVKHG FRQGLWLRQ LV GRRPHG WR EH  
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XQGHYHORSHG LI WKH\ DUH QRW H[HUFL  
1RZDGD\ V HYHU\WKLQJ KROGV WRJHWKI  
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DGDSW WKLWPHKHLQDUOZD\ WKLWPHRLQ  
FRQGLWLRQV D FHUWDLQ VSLULW RI LQ'  
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VSDGHV DQG SORXJKVKDUHV DUH WKH R  
, I ILHOGV DUH WR EH SURSHUO\ FXOWL  
KDUYHVWV WKDW PDQ KDV WKH ULJKW W  
IRXQGULHV DQG IDWRULHV GHYHORS Z  
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\$QG QRZ OHW XV LPDJLQH WKH L<sup>2</sup>QKDK  
YDVW RUVWPHSLQJ IRU WKH ILUVW WLPH I  
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: H DUH VRPHWLPHV WROG WKDW <sup>3</sup>QRWK  
WKH IDFWRQWHUX EH H[SURSULDWHG DQG  
FRPPXQDO SWRSDUHV\HU\ PDQ ZLOO JR EC  
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, QWHUQDWLRQDO FRPPHUFH ZLOO FRPH  
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KDYLQJ EHHQ WKURZQ RXW RI ZRUN D JI  
IURP GLVWDQW RU QHLJKERXULQJ FRXQV  
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HDW VL[ PRQWKV DIWHU WKH 5HYROXWLF  
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\$ JUHDW QXPEHU RI WKH LQKDELWDQW\  
DJULFXOWXULVWV 1RW LQ WKH VDPH PD  
WKHPVHOYHV RXW SORXJKLQJ IRU D ZDJ  
VXLFLHQW IRRGE~~IR~~W ~~AK~~~~HR~~~~CH~~~~DR~~~~L~~~~Q~~~~J~~~~W~~~~K~~~~H~~~~S~~  
DJULFXOWXUH RI WKH PDUN~~HH~~~~W~~~~B~~~~D~~~~O~~~~G~~~~H~~~~E~~~~A~~  
WKH EHVW PDFKLQHU\ WKDW PDQ KDV LQ  
OD<sup>2</sup>~~QR~~W KR~~Z~~~~L~~~~N~~~~H~~~~U~~~~W~~~~K~~~~H~~~~F~~~~R~~~~X~~~~Q~~~~W~~~~U~~~~\~~~~E~~~~H~~~~D~~~~V~~~~W~~~~R~~  
REMFW WR W~~K~~~~D~~~~Q~~~~L~~~~J~~~~A~~~~K~~~~F~~~~X~~~~O~~~~Z~~~~L~~~~O~~~~D~~~~R~~~~U~~~~R~~~~Q~~~~R~~~~Q~~  
WKH IXWXUH EXW DW RQFH GXULQJ WKI  
EHLQJ ZRUVWHG E\ WKH HQHP\  
\$JULFXOWXUH ZLOO KDYH WR EH FDUUL  
ZRPHQ DYDLOLQJ WKHPVHOYHV RI WKH H  
R~~J~~~~D~~~~Q~~~~L~~~~J~~~~L~~~~Q~~~~J~~~~W~~~~K~~~~H~~~~P~~~~V~~~~H~~~~O~~~~Y~~~~H~~~~V~~~~L~~~~Q~~~~M~~~~R~~~~\~~~~R~~~~X~~~~V~~~~J~~~~D~~~~Q~~~~J~~  
KXQGUHG \HDUV DJR ZRUNHG LQ WKH &K  
)HGHU~~PD~~~~W~~~~Z~~~~R~~~~U~~~~N~~~~R~~~~I~~~~G~~~~H~~~~O~~~~L~~~~J~~~~K~~~~W~~~~Z~~~~K~~~~H~~~~Q~~~~Q~~~~R~~~~W~~~~F~~~~C~~  
VFLHQW~~W~~~~J~~~~D~~~~E~~~~D~~~~J~~~~H~~~~G~~~~\~~~~R~~~~Z~~~~K~~~~H~~~~Q~~~~P~~~~D~~~~Q~~~~L~~~~Q~~~~Y~~~~H~~~~Q~~~~W~~~~V~~~~D~~  
FRQVFLRXV RI EHLQJ D XVHIXO PHPEHU F  
2I FRXUVH WKH\ ZLOO QRW ~~R~~~~V~~~~O~~~~K~~~~\~~~~F~~~~Z~~~~L~~~~O~~~~O~~  
SURGXFH WKRVH WKLQJV ZKLFK WKH\ IRU  
\$QG OHW ~~J~~~~H~~~~W~~~~Q~~~~R~~~~W~~~~D~~~~M~~~~R~~~~U~~~~R~~~~U~~~~W~~~~K~~~~H~~~~L~~~~Q~~~~K~~~~D~~~~E~~~~L~~~~W~~~~D~~  
SDUWV' PD\ LQFOXGH DOO GLVWULFWV W  
PRYHPHQW 'XULQJ WKH 5HYROXWLRQV R  
WKDW <sup>3</sup>IRUHLJQ SDUWV' PHDQW HYHQ WK  
VSHFXODWRUUR~~Q~~~~H~~~~J~~~~U~~~~D~~~~W~~~~Q~~~~V~~~~D~~~~H~~~~G~~~~7~~~~L~~~~Q~~~~agic~~~~D~~~~Q~~~~(~~  
3DULV D~~V~~~~D~~~~E~~~~D~~~~J~~~~H~~~~G~~~~\~~~~R~~~~Z~~~~K~~~~H~~~~Q~~~~Z~~~~R~~~~U~~~~V~~~~H~~~~W~~~~K~~~~D~~~~Q~~~~W~~~~K~~~~H~~~~\*~~~~H~~  
)UHQFK VR~~H~~~~O~~~~V~~~~E~~~~D~~~~L~~~~W~~~~K~~~~H~~~~\~~~~F~~~~R~~~~Q~~~~V~~~~S~~~~L~~~~U~~~~D~~~~W~~~~R~~~~U~~~~V~~~~;~~  
FRPSHOOHG WR GR ZLWKRXW WKHVH <sup>3</sup>IRU

\$JULFXOWXUH ZLOO KDYH WR EH FDUUL  
ZRPHQ DYDLOLQJ WKHPVHOYHV RI WKH H  
R~~J~~~~D~~~~Q~~~~L~~~~J~~~~L~~~~Q~~~~J~~~~W~~~~K~~~~H~~~~P~~~~V~~~~H~~~~O~~~~Y~~~~H~~~~V~~~~L~~~~Q~~~~M~~~~R~~~~\~~~~R~~~~X~~~~V~~~~J~~~~D~~~~Q~~~~J~~  
KXQGUHG \HDUV DJR ZRUNHG LQ WKH &K  
)HGHU~~PD~~~~W~~~~Z~~~~R~~~~U~~~~N~~~~R~~~~I~~~~G~~~~H~~~~O~~~~L~~~~J~~~~K~~~~W~~~~Z~~~~K~~~~H~~~~Q~~~~Q~~~~R~~~~W~~~~F~~~~C~~  
VFLHQW~~W~~~~J~~~~D~~~~E~~~~D~~~~J~~~~H~~~~G~~~~\~~~~R~~~~Z~~~~K~~~~H~~~~Q~~~~P~~~~D~~~~Q~~~~L~~~~Q~~~~Y~~~~H~~~~Q~~~~W~~~~V~~~~D~~  
FRQVFLRXV RI EHLQJ D XVHIXO PHPEHU F  
2I FRXUVH WKH\ ZLOO QRW ~~R~~~~V~~~~O~~~~K~~~~\~~~~F~~~~Z~~~~L~~~~O~~~~O~~  
SURGXFH WKRVH WKLQJV ZKLFK WKH\ IRU  
\$QG OHW ~~J~~~~H~~~~W~~~~Q~~~~R~~~~W~~~~D~~~~M~~~~R~~~~U~~~~R~~~~U~~~~W~~~~K~~~~H~~~~L~~~~Q~~~~K~~~~D~~~~E~~~~L~~~~W~~~~D~~  
SDUWV' PD\ LQFOXGH DOO GLVWULFWV W  
PRYHPHQW 'XULQJ WKH 5HYROXWLRQV R  
WKDW <sup>3</sup>IRUHLJQ SDUWV' PHDQW HYHQ WK  
VSHFXODWRUUR~~Q~~~~H~~~~J~~~~U~~~~D~~~~W~~~~Q~~~~V~~~~D~~~~H~~~~G~~~~7~~~~L~~~~Q~~~~agic~~~~D~~~~Q~~~~(~~  
3DULV D~~V~~~~D~~~~E~~~~D~~~~J~~~~H~~~~G~~~~\~~~~R~~~~Z~~~~K~~~~H~~~~Q~~~~Z~~~~R~~~~U~~~~V~~~~H~~~~W~~~~K~~~~D~~~~Q~~~~W~~~~K~~~~H~~~~\*~~~~H~~  
)UHQFK VR~~H~~~~O~~~~V~~~~E~~~~D~~~~L~~~~W~~~~K~~~~H~~~~\~~~~F~~~~R~~~~Q~~~~V~~~~S~~~~L~~~~U~~~~D~~~~W~~~~R~~~~U~~~~V~~~~;~~  
FRPSHOOHG WR GR ZLWKRXW WKHVH <sup>3</sup>IRU

EHHWURRW VXJDU ZKHQ VXJDUFdqH Udq  
3DULVLDQV GLVFRYHUHG VDOWSHWUH LG  
DQ\ IURP DEURDG 6KDOO ZH EH LQIHULR  
OLVSHG WKH ILUVW ZRUGV RI VFLHQFH"  
\$ UHYROXWLRQ LV PRUH WKDQ D PHUH  
V\WHP ,W LPSOLHV WKH DZDNHQLQJ RI  
WKH LQYHQWLYH VSLULW WHQIROG D KX  
WKH VFLHQFH RI PHQ OLNH /D, S\ODVFD UDA  
PLQGV RI PHQ DV GHHS DQG GHSHU V\  
\$QG WKHUH DUH VWLOO HFRQRPLVWV ;  
PDGH ' HYHU\RQH ZLOO UHWXUQ WR KLV  
UHYROXWLRQ ZHUH JRLQJ KRPH DIWHU D  
7R EHJLQ ZLWK WKH VROH IDFW RI KDY  
ZLOO LPSO\ WKH QHFHVVDQW, LRQJ FRKPS QZKVA  
OLIH LQ WKH ZRUNVKRSV WKH GRFN\DUQ  
\$QG WKH UHYROXWLRQ VXUHO\ ZLOO QF  
3DULV GXULQJ WKH VRFLODQ PUMKR QZRWIOR  
WZR E\ WKH VXSSRUWHUV RI PLGGOH FOI  
GHSUHVVHG E\ WIDFW & UWO RIIHOLWWOH WU  
RI LQYHQWLYH DRQKRZ WKH ZRFDQGLQJ PDQ  
ZLWKRXW DVNLQJ IRU KHOS IURP ZLWKR)  
JLYHV OLJKW WKH SRZHU RI WKH ZLQG \  
VLOHQW OLIH IRUFHV DW ZRUN LQ WKH H  
: H VKDOO VHH WKHQ ZKDW D YDULHW\  
RI WKH JOREH DQG DQLPDWHG E\ D UHYR  
DQG VXSSO\ ZLWK DOO PDQQHU RI OX[XU  
: H QHHG ZULWH QR ILFWLRQ WR SURYH  
DOUHDG\ EHHQ H[SHULPHQWHG XSRQ DG  
WR FDUUIHFWLQW WKH DWWHPSW ZHUH IF  
LQVSLUDWLRQ RI WKH 5HYROXWLRQ DQG

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\$ € < , | ž ž : ~

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3ROLWLFDO (FRQRP\ KDV RIWHQ EHHQ UF  
GHGXFWRQV IURP WKH GHFLGHGO\ IDOV  
FDSDEOH RI IRUFLQJ D PDQ WR DXJPHQW  
LQWHUHVW LQ LWV QDUURZHVV VHQVH  
7KH UHSURDFK LV SHUIHFWO\ WUXH VR  
GLVFRYHULHV DQG WUXH SURJUHVV LQ L  
KDSSLQHVV RI DOO ZDV LQVSLULQJ PHQ  
OHDVW WKRXJKW RI 7KH JUHDW LQYHVV  
DLPHG DERYH DOO DW JLYLQJ JUHDWHL  
6WHSKHQVRQW-~~FRXOG~~UGDYH RQO\ IRUHV  
WKHLU VOHHSOHVV QLJKWV ZRXOG EULQ  
EXUQHGH WKHLU GHVLJQV DQG EURNHQ W  
\$QRWKHU SULQFLSOH WKDW SHUYDGHV  
WKH WDFLW DGPLVLRQ FRPPRQ WR DOO  
RYHUSURGXFWLRQ LQ FHUWDLQ EUDQFK  
VXLFLHQW SURGXFWV WR VDWLVI\ WKH Z  
ZLOO QHYHU FRPH ZKHQ QRERG\ ZLOO E  
IRU ZDJHV 7KLV WDFLW DGPLVLRQ LV I  
WKH VR FDOOHG 'ODZV' WDXJKW E\ HFRG  
\$QG \HW LW LV FHUWDLQ WKDW WKH GD  
LQGLYLGXDOV ~~ZRXOG WKH QWVG~~IRI DOO  
VDWLVI\LQV ~~ZRXOG VHH WKDW DQLEGX~~  
SRVVHMV ~~VH~~WR SURYLGH DEXQGDQW  
NQRZV KRZ WR DSSO\ WKHVH PHDQV WR

7KDW WKLV LV WUXH DV UHJDUGV LQIG  
WR VWXG\ WKH SURFHVVHV DOUHDG\ LQ  
DQG ZRUN LW WR PDQXIDFWXUH RQ DWU  
LQ RUGHU WR SHUFHLYH WKDW ZH FRXOC  
RU PRUH DQG \GHWZUN WKUDWKZHWDUH XV  
: H JR IXUHWKMHUW WKDW DJULFXOWXU  
ZKR FXOWLYDWH WKH VRLO OLNH WKH P  
SURGXFWLRQ QRW RQO\ IRXUIROG EXW '  
VRRQ DV WKH\ IHID WKHQ QDM G DQRLH MDVLR'  
ZLOO EH HVWDEOLVKHG LQVWHDG RI WKH  
(DFK WLPH DJULFXOWXUH LV VSRNHQ R  
WKH SORXJK WKURZLQJ EDGO\ DVVRUWH  
ZDLWLQJ DQ[LRXVO\ IRU ZKDW WKH JRRG  
WKLQN RI D IDPLO\ ZRUNLQJ IURP PRUQ '  
EHG GU\ EUHDG DQG FRDUVH EHYHUDJH  
RI /D %UX\qUH

\$QG IRU WKHVH PHQ JURXQWKHRZQ PRRV  
VRFLHW\ SURSRVHV LV WR UHGXFH WKH  
UHIRUPHUV GR QRW FDUH WR LPDJLQH D  
DQG SURGXFLQJ E\ D IHZ KLFKXUQWZIRURG S  
RQO\ KLV RZQWDLXQGUHG PHQ PRUH D  
JORZLQJ GUHDPV RI WKH IXWXUH 6RFLDC  
H[WHQVLYH FXOWXUH ZKLFK DIWHU DOC  
%XW WKH WKLQNLQJ DJULFXOWXUFLRQFH  
DUH RQ D IDU JUDQGHU VFDOH +H RQO\  
SURGXILHFLVQW YHJHWDEOHV IRU D IDPLC  
EHDVWV KH QHHGV QR PRUH VSDFH WKDC  
DLP LV WR PDNH KLV RZQ VRLO WR GHIA\  
DQG HDUWK DURXQG WKH \RXQJ SODQW  
KH XVHG WR JDWKHU IURP ILIWA\ DFUHV<sup>2</sup>  
E\ JUHDWO\ UHGXFLOVKHRQWKIDOF R-QHVNUP  
WKDW ZH ZLOO EH DEOH WR IHHG HYHU\E  
QR PRUH WLPH WKDQ ZKDW HDFK FDQ JL  
7KLV LV WKH SUHVHQW WHQGHHQF\ RI D.  
:KLOH VFLHQWLILF PHQ OHG E\ /LHELJ  
DJULFXOWXUH RIWHQ JRW RQ WKH ZURQ  
XQOHWWHUHG DJULFXOWXULVWVODSINQMC

JDUGHQHUV R\H3DU5LRXH7Q 6FRWFK DQG (I  
DQG /RPEDUGLDQ IDUPHUXHSI0DVO QDVPR  
6FLOO\ ,VOHV KDYHUR SHROJLGRXS VWFKWOW  
JUDVS WKHP :KLOH XS WLOO ODWHO\ D  
VHYHQWHHQ WR WZHQA\ DFUHV<sup>2</sup> DORG OZLYH IN  
KRZ SHDV<sup>4</sup> ZQWFDQLQ RIZ QR ORQJHU VD\ ZK  
ZKLFK DOO WKDW LV QHFHVVDU\ WR D ID  
RI OX[XUWKH VRLO LV ZRUNHG E\ PHDQV  
7ZHQA\ \HDUV DJR LW FRXOG DOUHDG\  
c` ```` ```` LQGLYLGXDOV FRXOG OLYH YHU  
ZKDW FRXOG EH JURZQ LQZ<sup>7</sup>KHHO VHP%VH W D  
UHFHQWO\ PDGH LQ )UOQ<sup>8</sup>QHODQGH<sup>9</sup>HD<sup>0</sup>QZ  
FRQWHP SODWH WKH QHZ KRUL]RQV ZKLF  
FXOWLYDWLQJ WKH HDUWK DV LW LV DOU  
VRLOV ILIW\ RU VL[W\ PLOOLRQ LQKDEL\  
VWLOO EH D YHU\ IHHEOH SURSRUWLRQ \  
,Q DQ\ FDVH DV ZH DUH DERXW WR GHF  
DEVROXWHO\ SURYHG WKDW LI WRPRUUR  
DQG RI 6HLQJ<sup>11</sup>HD<sup>12</sup>W<sup>13</sup>2GVMKRUP VHOYHV DV DG  
ZKLFK DOO ZRUNHG ZLWK WKHLU KDQGV  
WKHP D VLQJOH EXVKHO RI ZKHDW D VL\  
IUXLW DQG OHIW WKHP RQO\ WKH WHUU  
RQO\ SURGXFH DOO WKH FRUQ PHDW DG  
EXW DOVR YHJHWDEOHV DQG IUXLMQIZ<sup>16</sup>WKLIF  
TXDQWLWLHV IRU DOO  
\$QG LQ DGGILW<sup>17</sup>ERVQK<sup>18</sup>ZM<sup>19</sup>WKH VXP WRWD  
OHVV WKDQ WKDW H[SHQGHG DW SUHVHG  
LQ \$X<sup>20</sup>OHUHQG 5XVVLD ZLWK YHJHWDEOH  
H[WHQVLYH DJULFXOWXUH DQG ZLWK IU  
,W LV VHOI HYLGHQW WKDW ZH LQ QRZL  
QRU WKDW HDFK UHJLRQ VKRXOG VWULY  
LWV FOLPDWH E\ D PRUH RU OHVV DUWLI  
WR WKH IDFW WKDW WKH WKHRU\ RI HVFK  
VWUDQJHO\<sup>23</sup>M<sup>24</sup>DD<sup>25</sup>WH<sup>26</sup>DFK<sup>27</sup>DD<sup>28</sup>QH LV RIWHQ X  
:H DVVHUW<sup>29</sup>PR<sup>30</sup>D<sup>31</sup>W<sup>32</sup>RS<sup>33</sup>HR<sup>34</sup>SOH KDYH QHYHU  
LPPHQVH ODERXU RI 6RXWKHUQ ZLQH JU  
+XQJDULDQ FRUQ JURZHUV ZKRVH H[FHV

UHGXFHG LI WKH\ DGRSWHG LQWHQVLYH  
H[WHQVLYH DJULFXOWXUH

, ,

,W ZRXOG EH LPSRVVLEOH WR TXRWH KH  
DVVHUVLW\ WKHUHIRUH REOLJHG WR U  
LQIRUPDWLRQ WR HDGRWK\ D\UWREULHVB SRQGE  
ZH HDUQHVO\ LQYLWH WKRVH ZKR DUH  
H[FHOHQW ZRUNV SXEOLVKHG LQ )UDQF  
OLVW DW WKH -b- \$RVVRRWK LLQJH BWRV DQV  
KDYH DV \HW QR UHDO QRWLRQ RI ZKDW  
H[SORUH WKH VXUURXQGLQJ PDUNHW JDI  
TXHVWLRQ WKH PDUNHW JDUGHQHUV DQ  
ZLOO WKHQ EH DEOH WR VHH ZKDW (XUR  
FHQWXU\ DQG WKH\ ZLOO XQGHUVWDQG  
EH DUPHG ZKHQ ZH NQRZ WKH VHFUHW R  
VRLO

\$ IHZ IDFWL FZLOR WKRZ WKDW RXU DVV  
H[DJJHU BWRV\ :ZLVK WKHP WR EH SUHFH  
: H NQRZ LQ ZKDW D ZUHWFKHG FRQGLV  
FXOWLYDWRU RI WKH VRLO LV QRWVSOXE  
6WDWH ,I WKH 6WDWHWKDI[PRQLVFRGHU  
PHDQV RI SURPLVVRU\ QRWHV DQG VRR  
VRLO EHORQJLQJ LQ UHDOZWHV BQDGLQD  
WKH EDQNHU WKXV SOXQGHUV WKH FXOV  
7KH VXP YDULHV LQXWDEFW QRXQWUDOHU  
RIWHQ WKH KDOI RI WKH UDZ SURGXFH ,  
WKH 6WDWH TXLWH UHFHQWO\ DV PXFK E  
ORUHRWKUH VKDUH RI WKH RZQHU DQG F  
\$V VRRQ DV WKH FXOWLYDWRU KDV REWI  
ODERLQYHQWLRQ RU LQLWLDWLYH WKW  
6WDWH DQG WKH EDQNHU ZLOO DXJPHQ\

RI EXVKHOV UHDSHG SHU DFUH UHQW ZL  
ZLOO WDNH FDUH WR UDLVH WKHP VWLOO  
VKRUW HYHU\ZKHUH WKH FXOWLYDWRU  
GD\ WKHVH WKUHH YXOWXUHV WDNH IUR  
KLP HYHU\ZKHUH RI ZKDW ZRXOG HQDEOI  
ZK\ DJULFXOWXUH SURJUHVVHV VR VORZ  
7KH FXOWLYDWRU FDQ RQO\ RFFDVLRQI  
H[FHSWLRQDO UHJLRQV XQGHU TXLWH H  
D TXDUUHO EHWZHHQ WKH WKUHH YDPSL  
WKH WULEXWH HYHU\ FXOWLYDWRU  
VSDGH HYHU\ EDUUHO RI FKHPLFDO PDQ  
LWV UHDO FRVWV W\KHOPLG & OHRDQV ZKB  
WKH MDSUWRIGX FH  
7KLV LVGZKULQJ DOO WKLV FHQWXU\ RI I  
KDV RQO\ LPSURYHG IURP WLPH WR WLP  
+DSSLO\ WKHUH KDYH DOZD\V EHHQ VPI  
WKH YXOWXUH DQG KHUH ZH OHDUQ ZKD  
PDQNLQG /HW XV PHQWLRQ D IHZ H[DPS  
,Q WKH \$PHULFDQ SUDLBO\ ZKORFPHB  
ZKHDW FURSV IURP g WR ae EXVKHOV DF  
SHULRGLFDO GURXJKWV e`` PHQ ZRUNI  
WKH DQQXDO IRRG RWK`D`OSWRISOLPSURY  
WKUHH \HDUV\HDUO\PODHRXU c`` GD\V \  
DV IO\WKU \HDUO\ IRRG RI be` PHQ +HUH  
HFRQRP\ LQ PDQXDO ODERXU RQ WKRVH  
WKUDVKLQJ LQ DQG DOOPRVW PLOLWDU\ |  
UXQQQLQJ WR DQG fDQOQLV GRVH ZILWKPSH  
7KLV LV DJULFXOWLYDWRU IDYDULFXO  
WKH VRLO IURP QDWXUH ZLWKRXW VHHNI  
\LHOGHG DOO LW FDQ WKH\ OHDYD VWLOO  
H[KDXVWHG LQ LWV WXUQ %XW KHUH LV  
DOUHDG\ ZRUNHG DQG ZLOO EH P,RUHRDE  
WR FXOWLYDWH D OLPLWHG VSDFH ZHOO  
ZRUN DQG WRJREWFLQSVISIRVODUE OH 7KL  
HYHU\ HDG ZKHUHDV DJULFXOWXULVWV I  
IHUWLOH SODLQV RI ZHVWHUQ \$PHULFD I  
ae EXVKHOV SHU DFUH E\ H[WHQVLYH FX



VRPHWLPHV f` EXVKHOV SHU DFUH LQ WK  
FRQVXPSWLRQ RI D PDQ LV WKXV REWDL  
\$QG WKH PRUH LQWHQVH WKH FXOWXUF  
EXVKHO RI ZKHDW 0DFKLQHU\ UHSODFH\  
WKH LPSURYHPHQW V\XFKGDHG EU DLQH QJD  
VWRZKLVFK ZLOO GRXE OH WKH FURS\RIPO\  
QRWKLQJ EXW NHHS LQJ WKH VRLO IUHH |  
DYHUDJH VRLO WR \LHOG H[FH, WOKIDW EHU  
IRUW\ \HDUV LQ VXFFHV VLRQ DW 5RWKDF  
+RZHYDUW XV QRW ZULWH DQ DJULFXO\  
FURS RI dd EXVKHOV SHU DFUH 7KDW QF  
UDWLRQDO FXOWXUH DQG OHW XV VHH z  
7KH c f` `` LQGLYLGXDOV ZKR LQKDEL'  
6HLQH HW 2LVH FRQVXPH \HDUO\ IRU WK  
EXVKHOV RI FHUHDQV FKLHIO\ ZKHDW D  
FXOWLYDWH LQ RUGHU WR REWDLQ WKL  
DFUHV ZKLVK WKH\ SRVVHV ,W LV HYLG  
VSDGHV 7KDW ZRXOGIQRZRNWDRVPRIFK W  
,W ZRXOG EH SUHIHUDEOH WWRPSUBYQ J  
QHHGHG GUDLQLQJ WR OHYHO ZKDW QHI  
ZHUH LW HYHQ QHFHVVDU\ WR VSHQG e `  
SUHSDUDWRQDZRUNJH RI a` ZRUNGD\ V W  
7KHQ WKH\ ZRXOG SORXJKZKLVK WRXHOV  
DQG WKUHH ILIWKV RI D GD\ SHU DFUH I  
WKUHH ILIWKV RI D GD\ IRU ZRUNLQJ ZLV  
VRUWHG E\ VWHDP LQVWHDG RI WDNHQ K  
VRZQ LQ URZV LQVWHDG RI EHLQJ WKUR;  
ZRXOG QRW WDNH a` GD\ V RI e KRXUV SH  
JRRG FRQGLWLRQV %XW LI a` `` `` ZRU  
GXULQJ c RU d \HDUV WKH UHVXOW ZLOO  
SHU DFUH ZLOO EH REWDLQHG E\ RQO\ Z  
ae `` `` ZRUNGD\ V ZLOO WKXV KDYH EI  
SRSXODWLRQ RI c f` `` LQKDELWDQWV  
HYHU\RQH FRXOG GR LW ZLWKRXW KDYLQ  
HYHQ ZRUNHG WKH JURXQG EHIRUH 7KH  
RI ZRUN ZRXOG FRPH IURP WKRVH ZKR N  
WKHUH LV QR WRZQVPDQ RI HLWKHU VH[

ORRN LQJ DIWHU PDFKLQHV DQG RI FRQW  
IHZ KRXUV DSSUHQWLFHV KLS

: HOO ZKHQ ZH FRQVLGHU WKDW LQ WK  
3DULV ZLWKRXW FRXQWLQJ WKH XQHPS  
DOZD\ DERXW a` `` `` ZRUNPHQ RXW RI Z  
WKDW WKH SRZHU ~~ORQWDLWLRLXQZSLXPHGMOR~~  
ZLWK D UDWLQRQDO FXOWXUH DOO WKH E  
PLOORQ LQKDELWDQWV RI WKH WZR GH:

: H UHSHDW WKL V LV QR IDQF\ GUHDP  
WUXO\ LQWHQVLYH ~~KDDYHUQRXWGHSHQGHG~~ >  
LQ WKUHH ~~UHD~~ ~~DOO~~ ~~HEWW~~ RI ZKLFK RQH JUD  
RU f `` DQG RFFDVLRQDOO\ a` `` `` JUDLC  
QHFHVVDU\ IRU D IDPLO\ RI ILYH LQGLYL  
WKH FR ~~ZWUKDUYH~~ RQO\ PHQWLRQH G ZKDW  
QXPURXV IDUPHUV LQ )U ~~ELWFDHQ~~ ~~G~~ ~~QZKODDQ~~ ~~G~~  
GRQH WRPRUURZ ZLWK WKH H[SHULHQFH  
SUDFWLFH ~~RG~~ ~~DOO~~ ~~DU~~

%XW ZLWKRXW D UHYROX ~~QRURDIWQHULWRH~~  
GRQH EHFDXVH LW LV QRW WR WKH LQW  
EHFDXVH SHDVDQWV ZKR ZRXOG ILQG WK  
NQRZOHGJH QR ~~QRW~~ ~~WR~~ ~~PH~~ ~~PH~~ WR REWDL  
DKHDG

7KH VRFLHW\ RI WRGD\ KDV QRW \HW UI  
SURFODLP DQ \$QDUFKLVW &RPPXQH DQG  
EHFDXVH WKH\ ZLOO QRW EH IRROLVK HC  
ZKLFK ~~Q~~ ~~QDUV~~ ~~DDZ~~ G %HUOLQ PDNH DV ZHO  
ULVN RI EHLQJ OHIW ZLWKRXW EUHDG

ORUHR ~~YH~~ ~~ULFXOWXUDO~~ ZRUN ~~EZR~~ ~~XKH~~ ~~WH~~  
EHFRPH WKH PRVW DWWUDFWLYH DQG WI  
<sup>3</sup>: H KDYH KDG HQRXJK MHZHOHU\ DQG H  
VD\ <sup>3</sup>LW LV KLJK WLPH IRU WKH ZRUNHU'  
JR LQ VHDFRIRILP ~~SLURXVLRQV~~ RI QDWXUF  
KDYH ~~JR~~ ~~WHQ~~ LQ WKH GDUN IDFWRULHV R  
, Q WKH OLGGOH \$JHV LW ZDV \$OSLQH S  
DOORZH G WKH ~~6IZ~~ ~~WR~~ ~~WR~~ ~~DQ~~ ~~Q~~ ~~NH~~ ~~QR~~ ~~JIV~~ ORG  
DOORZ D FLW\ LQ UHYROW WR ~~UHRH~~ ~~VL~~ ~~WR~~ ~~U~~

: H KDYH VHHQ KRZ WKH c e`` `` LQKDEL'  
3DULV FRXOG ILQG DPSOH EUHDG E\ FXO  
/HW XV QRZ SDVV RQ WR FDWWOH

(QJOLVKPHQ ZKR HDW PXFK PHDW FRQ  
bb` SRXQGV D \HDU SHU DGXOW 6XSSRVI  
PDNHV D OLWWOH OHVV WKDQ WKH WKLU  
LQFOXGLQJ FKLOGILFHQHQW ~~DDUHLRQ~~ DRU

7RGDZLWK WKH SDVWXUH V\VWHP ZH Q  
QRXULVK ff` `` KHDG RI FDWWOH 7KLV F  
KRUQHG FDWWOH 1HYHUWKHOHVV ZLWK  
ZDWHU DV UHFHQWO\ GRQH RQ WKRXVD  
a be` `` DFUHVLDU ~~DDUHLRQ~~ MXLQWHQVLYH F

EHHWURRW LV JURZQR ~~DDUHLRQ~~ TXDUW  
VD\DERXW ca` `` DFUHV \$QG LI ZH KDYH  
HQVLODJH WKH FRPSUHVVLRQ RI IRGGHI  
IRGGHU RQ DQ DUHD RI bag e`` DFUHV

,Q WKH HQYLURQV RI OLODQ ZKHUH VH  
IRGGHU IRU WZR WR WKUHH KRUQHG FDV  
bb `` DFUHV DQG RQ D IHZ IDYRXUHG IL  
DFUHV KDYH EHHQ FURSSHG WKH \HDUO  
QLQH DFUHV SHU KHDG RI FDWWOH DUH  
WZR DQG RQH KDOI DFUHV IRU QLQH R[H  
DUH WKH RSSRVLWH H[WUHPHV LQ PRGHI

,Q \*XHU ~~DDUHLRQ~~ WRWDO RI i hhd DFUHV XW  
DUH FRYHUHG ZLWK FHUHDQV DQG NLWFI  
PHDGRZV 2Q WKHVH e ahi DFUHV a dh` t  
VKHHS DQG d b`` SLJV DUH IHG ZKLFK P  
SHU WZR DFUHV ZLWKRXW UHFNRQLQJ W  
WKDW WKH IHUWLOLW\ RI WKH VRLO LV P

5HWXUQLQJ WR RXU c e`` `` LQKDELWD  
HQYLURQV ZH VHH WKDW WKH ODQG QHF  
GRZQ IURP e ```` `` DFUHV ~~DDUHLRQ~~ WKH ~~DDUHLRQ~~ OHW X

ORZHVW ILJXUHV OHW XV WDNH WKRVH  
DGG WR WKH ODQG QHFHVVDU\ IRU VPDO  
KRUQHG EHDVWV DQG DOORZ cie 2'didDFUI  
\RX OLNH RQ WKH a `ac `` DFUHV UHPDL  
WKH SHRSOH

/HW XV EH JHQHURXV DQG JLYH e ````  
SURGXFWLYH VWDWH

\$IWHU KDYLQJ WKHUHIRUH HPSOR\HG LI  
ZRUNGDI\ KDOI RI ZKLFK DUH IRU SHUPI  
EUHDG DQG PHDW DVVXUHG WR XV ZLWK  
REWDLQDEOH LQ WKH VKB\WZIRWKRZOWWS  
FRQVLGHUWLRQ WKDW D SRSXODWLRQ  
FRQVXPHV OHVV PHDW WKDQ (QJOLVKPHO  
YHJHWDEOHV E\ DQ\LPDQXIRKGR1R'Z''''

KRXUV PDNH SHUULQGLDVEWVQ'GPHG \$ \$  
PXVW KDYH DW OHDVW a b```` DGXOW P  
ZRUNHO WKHQ WR JLYH EUHDG DQG PH  
VHYHQWHHQ KDOI GD\ RI ZRUN D \HDU \$  
GRXEHO WKDW QXPEHU LI \RX OLNH LQ I  
WZHQRW\ ILYH ZRUNGDI\Q RWKLYQH RRUVWLK  
SOHDVXUHDEOH<sup>2</sup>WRXQEWDLQHVKHVMKUHH  
EUHDG PHDW DQG PLON 7KH WKUHH SU  
DQ[LHW\ WR QLQH WHQWKV RI PDQNLQG

\$QG<sup>2</sup>OMW XV QRW WUKH RH DUSHORWLD  
KDYH RQO\ WROG ZKDW LV ZKDW KDWHEH  
VFDOH \$JULFXOWDQX]HFXLQGVKLVH ZDUW  
ODZV DQG JHQHUDOIHQRSRQVFWGLRQ QRV  
7KH GD\ 3DULV KDV XQGHUVWRRG WKDV  
SURGXFHG LV D TXHVWLRQ RI SXEOLF LI  
XQGHUVWRRG WKDW WKLV TXHVWLRQ LV  
SDUOLDPHQWU\ GHED<sup>2</sup>RVWKIDWKGD SUHVI  
EH DQ DFFRPSOLVKHG IDFW 3DULV ZLOO  
DQG FXOWLYDWH WKHP \$QGIWKHVKWVKEHQ  
WKLUG RI KLV H[LVWHQFH LIQRHUCMURRG  
LW KLPVHOI XQGHU KLV ZDOOV ZLWKLQ  
H[LVW DQG LQ D IHZ KRXUV RI KHDOWK'

\$QG QRZ ZH SDVV RQ WR IUXLW DQG YH  
YLVLW WKH HVWDEOLVKPHQW RI D PDUNF  
LJQRUHG E\ OHDUQHG HFRQRPLVWV DW  
/HW XV YLVLW3RQXFSRWHK DXWKRU RI D  
JDUGHQLQJ ZKR PDNHV QR VHFUHW RI Z  
SXEOLVKHG LW DOO DORQJ

0 3RQFH DQG HVSHFLDOO\ KLV ZRUNP  
PHQ WR FXOWLYDWH D SORW D OLWWOH  
DQG HYHQ ILIWHW ~~WQDKRXLWMDR EVD~~MLPHV PR  
7ZHQW\ IRXU RI WKHP ZR ~~XOZKDRWR E~~FHWZL  
SUREDEO\ DQVZHU WKDW DV KH SD\ V WK  
b g DFUHV RI ODQG DQG ... a`` IRU PDQXL  
WR H[SORLW +H ZRXG ~~GHQJGRKXOR DQMG~~  
WXUQ ` +LV LQVWDOODWLRQ KDV DOVR F  
WKDQ KDOI ZHQW DV WULEXW ~~HQWRH WQHW~~  
HVWDEOLVKPHQW UHSUHVHQWV DW PRVV

%XW OHW XV H[DPLQH KLV FURSV QHDI  
RQLRQV UDGLVKHV DQG VPDOO YHJHWD  
RI FDXOLEORZ ~~ED~~VNHV RI WRPDWRHV e  
aed `` V DODGV LQ VKRUW D WRWDO RI  
DF ~~UHV~~ \DUGV ORQJ E\ a`i \DUGV EURDG  
IRXU WRQV RI YHJHWDEOHV WR WKH DFU

%XW D PDQ GRHV QRW HDW PRUH WKDQ  
\HD ~~W~~QG WZR DQG RQH KDOI DFUHV RI D  
YHJHWDEOHV DQG IUXLW WR ULFKO\ VXS  
7KXV WZHQW\ IRXU SHUVRQV HPSOR\HG I  
ODQG DQG RQO\ ILYH ~~ZRXOQGQSURRQHW~~  
YHJHWDEOHV DQG IUXLW IRU ce` DGXOW\  
LQGLYLGXDOV

7R SXW LW DQRWKHU ~~ZDRQD ECKWLYDHW~~  
DOUHDG\ EHH ~~Q~~V ~~XGSDWWHVKRXOG~~ HDFK J  
KRXUV D \HDU a`c WR SURGXFH YHJHWD  
/HW XV PHQWLRQ WKDW VXFK D SURGXF  
XQGHU WKH ZDOOV RI 3DULV RQ DQ DUH  
JDUGHQHUV 2QO\ WKHVH PDUNHW JDUGF  
EHDVWV RI EXUGHQ LQ RUGHU WR SD\ D

%XW GR QRW WKHVH IDFWV ZKLFK FDQ  
ag c`` DFUHV RI WKH eai ``` UHHPH WQR LQY  
QHFHVVDU\ YHJHWDEOHV DV ZHOO DV D  
LQKDELWDQWV RI RXU WZR GHSDUWPHQV  
\$V WR WKH TXDQWLW\ RI ZRUN QHFHVVI  
YHJHWDEOHV LW ZRXOG DPRXQW WR e`  
DGXOW PDOH LI ZH PHDVXUH E\ WKH PD  
ZH FRXOG UHGXFH WKLV TXDQWLW\ LI ZH  
-HUVH\ DQG ~~PHDVXUH~~ DOVR UHPHPEHU WK  
JDUGHQHU LV IRUFHG WR ZRUN VR KDUG  
IUXLWV WKH KLJK SULFHV RI ZKLFK KDY  
V\ VWHP RI FXOWXUH HQWDLOV PRUH ZRU  
RUGLQDU\ VWDSOH IRRG YHJHWDEOHV D  
3DULV QRW KDYLQJ WKH PHDQV WR PDN  
EHLQJ REOLJHG WR SD\ KHDYLO\ IRU JOE  
DUWLILFLDO KHDW RXW RI PDQXUH ZKLC  
KRWKRXVHV

, 9

7KH PDUNHW JDUGHQHU ~~PHDVXUH~~ FZIG WDR EHFRRP  
UHQRXQFH DOO MR\ V RI OLIH LQ RUGHU  
KDUG JULQGHUV KDYH UHQGHUHG D JUHE  
WKH VRLO FDQ ~~PHDVXUH~~ ZLWK ~~PHDVXUH~~ KRWEH  
KDYH DOUHDG\ VHUYHG WR JLYH WKH QH  
HDUO\ IUXLW DQG WKH\ PDNH LW LQ VXF  
WR VHOO LW LQ SDUW RWKHUZLVH LW Z  
LQFK HYH ~~PHDVXUH~~ LW VR ZHOO VRL ~~PHDVXUH~~  
RI \$JULF ~~PHDVXUH~~ DUWLFOH RQ PDUNHW JDI  
WKH PDUNHW JDUGHQHU VWLSXODWHV W  
ZKHQ KH OHDYHV WKH ELW RI JURXQG KF  
FDUWV ZLWK IXUQL ~~PHDVXUH~~ ~~PHDVXUH~~ ~~PHDVXUH~~ ~~PHDVXUH~~  
FXOWLYDWRUV WR WKH OHDUQHG WUHDV

PHDQV RI HTXDOLJLQJ WKH QDWXUDO DG  
ZKDW WKH PDQ LV ZRUWK ' WKDW LV WKI  
\$QG \HW WKH PDUNHW JDUGHQHUV RI 3  
KDUG WR REWDLQ WKH VDPH UHVXOWV D  
(QJODQG \$SSO\LQJ LQG XVWU\ WR DJULF  
DGGLWLRQ WR WKHLU VRLO E\ PHDQV RI  
)LIW\ \HUV DJR WKH JUHHQKRXVH ZDV  
JURZ H[RWLF SODQWV IRU SOHDVXUH %) )  
JHQHUDOLJHG \$ WUHPHQGRXV LQG XVWU  
-HUV\KHUH KXQGUHGV RI DFUHV ~~DWR D~~  
QRWKLQJ RI WKH FRXQWOHV VPDOO JUF  
\$FUHV DQG DFUHV RI JUHHQKRXVHV ~~WV~~  
DFUHV LQ aiab LQ WKH VXEXUEV RI /RQ  
(QJODQG DQG 6FRWODQG

7KH\ DUH EXLOW RI DOO TXDOLWLHV E  
ZDOOV GRZQ WR WKRVH ZKLFK UHSUHVH  
JODVV IUDPHV ZKLFK ~~FRV D O H Y H Q Q R U L E~~  
DQG PLGGOH ~~PQG SHU W W K D U G~~ DUG XQG  
DUH KHDWHG IRU DW OHDVW WKUHH RI II  
JUHHQKRXVHV ZKLFK DUH QRW ~~K R D W F R Q~~  
QRW IRU JURZLQJ JUDSHV DQG WURSLFD  
WRPDWRHV DQG VR RQ

,Q WKLV ZD\ PDQ HPDQFLSDWHV KLPVHC  
KH DYRLGV DOVR WKH KHDY\ ZRUN ZLWK  
EX\LQJ PFK OHVV PDQXUH DQG LQ ZRUN  
ZRUNLQJ OHVV WKDQ VL[W\ KRXUV D ZHH  
IRUPHUO\ UHTXLUHG DFUHV DQG DFUHV I

7KH UHVXOW RI DOO WKHVH UHFHQW FR  
RI WKH DGXOWV RI D FLW\ JDYH HDFK DE  
ILQHVV IUXLWR ~~X Q G R Y H W H W D R E Z D X V O G~~ KDYH  
DQ XQOLPLWHG VXSSO\ RI WKDW VRUW R  
SRSXODWLRQ

%XW WKHUH LV D VWLOO PRUH LPSRUW  
QRZGD\ D WHQG HQ ~~N L W R K G H Q R P O I G D S R G~~  
ZKHQ LW LV XVHG WR VXFK D SXUSRVH \  
VKHOWHUV DOUHD ~~G V X I E K H D I D E I R O R X Q V W U R~~  
SRWDWRHV SHU DFUH DV D ILUVW FURS

VHFRQG DQG D WKLUG FURS DUH REWDLQ  
ZKLFK SUHYDLOV LQ WKH VXPPHU XQGHU  
, JDYH )LQHG )DFWRULVHPSVQGV:WULNI  
GLUHFWRUHQSWIWR VDI KMKHLUWKDRXDP  
WUDLQHG JDUEGQHYDRQHOWKLUWHHQ DFU  
REWDLQ adc WRQV RI IUXLW DQG HDUO\ ` ` ` ` WRQV RI FRDQ  
\$QG WKLW LV GRQH QRZ LQ \*XHJHQVFDQ  
D QXPEHU RI VWHDPHUV FRQVWDQWO\ SC  
RQO\ WR H[SRUW WKH FURSV RI WKH JUH  
1RZDGD\V LQ RUGHU WR REWDLQ WKDW  
ZH PXVW SORXJK HYHU\ \HDU D VXUIDFH  
ZHHG LW DQG VR RQ ZKHUHDV ZLWK W  
SHUKDSV WR VWUZARZNSHUKDQXDUEDQ  
JUHHQZRXV KIDOO VDYH DIWHUZDUGV DW  
TXDUWHUV RI WKH \HDUO\ ODERXU UHTXI  
7KHVHIDFWHUVXOWV ZKLFK HYHU\RQH FD  
IDFWV DUH DOUHDG\ D KLQW DV WR ZKDV  
WUHDWHG LW ZLWK LQWHOOLJHQFH

,Q DOO WKH DERYH ZH KDYH UHDVRQHG :  
H[SHULHQFH ,QWHQVLYH FXOWXUH RI WI  
DQG ILQDOO\ WKH NLWFKHQ JDUGHQWXQHG  
WHQGHQF\ LV WR H[WHQG DQG WR JHQHU  
WKH\ DOORZ RI REWDLQLQJ PRUH SURGX  
FHUWDLQW\

,Q IDFW DIWHU KDYLQJ VWXGLHG WKH  
ZH IDUP WKDW WDNLQJ DOO LQ DOO IDU  
SRWDWRHV XQGHU JODVV LQ \$SULO ZKKE  
UHTXLUHV GLJLQJ D VSDZBWRXUQWHEWV



: RUN LV OLNHZLVH HFRQRPLJHG LQ HPSC  
HYHQ ZKHQ DQ LQLWLDO H[SHQVH KDG W  
&RPSOHWH ILJXUHV FRQFHUQLQJ WKH F  
JODVV DUH VWLOO ZDQWLQJ 7KLV FXOW  
RXW RQ VPDOO DUHDV %XW ZH KDYH DO  
ROG FXOWXUH RI HDUO\ VHDVVRQ JUDSHV  
,Q WKH QRUWK RI (QJODQZKRQHWRHDOFI  
D WRQ DWPWRKWKSLW\ KDYH ORQJ VLQF  
JUDSHV 7KLUW\ \HDUV DJR WKH\H VRDS  
JURZHU \$MUbSRXQG DQG \$HUH SRXQG DW 1  
WDEOD\7WKH VDPH JURZHUV G\B\O\SRXQG  
XV VR KLPVHOI LQ D KRUWLFXOWXUDO M  
WKH WRQV DQG WRQV RI JUDSHV DUULYL  
7KDQNV WR WKH FKHDSQHVV RI FRDO D  
WKH QRUWK WUDYHO QRZ VRXWKZDUGV  
7KH\ FRVW VR OL\W\OH WK\DOGL-CH\DHV KU  
SHU SRXQG E\ WKH JDUGHQHUV VDWGLUH  
DJR LV RQO\ NHSW XS E\ VODFN SURGXF  
,Q ODUFK %HOJLXP JUDSMB DZHLORQG  
JUDSHV FXOWLYDWHG XLOGHPHODVHTXDDG  
DUWLILFLDO KHDWLQJ EDUWKFRG YDLWRQK  
JUDSHV ERXJKW E\ WKH SRXQG LQ WKH Y  
WKDW LVRWRDVIDHZ KHDVSKHFWWLOO FRVW  
UHDVVRQ RI WKH H[FHVVLVH UHQW RI WKH  
KHDWLQJ RQ ZKLFK WKH JDUGHQHU SD\<\  
PDQXIDFWXUHU DQG WKH PLGGOHDPDQ 7I  
FRVWV 3QH[W WR QRWKLQJ' WR KDYH GH  
RXU PLWV\ /RQGRQ LQ DXWXPQ ,Q RQH F  
JODVV DQG SODLVHLMKHWVU LQFKHV O  
ZLGH UHVWLQJ DJDLQVW RXU FRWWDJH  
H[TXLVLWH IODYRXU LIQZHFVREHUF XWLYH  
IURP D +JPE\H VWDON VL[\HDU ROG \$(  
UDLQ FDPH WKURXJK \$W QLJKW WKH WH  
ZDV HYLGHQWO\ QRW KHDWHG IRU LW ZI  
VWUHHW \$QG WKH FDUH ZKLFK ZDV JLYF  
HYHU\ \HDU DQG EULQJLQJ D ZKHHO EDL  
RYHU WKH VWDON RI WKH YLQH SODQWH

2Q WKH RWKHU KDQG LI ZH HVWLPLDWH  
WKH ERUGHUV RI WKH 5KLQH RI /DNH /HP  
XSRQ VWRQH RQ WKH VORSHV RI WKH KL  
HDUWK WR D KHLJKW RI WZR RU WKUHH I  
WKDW RQ WKH ZKROH WKH H[SHQGLWXUH  
PRUH FRQVLGHUDEOH LQ 6ZLW]HUODQG F  
XQGHU JODVV LQ /RQGRQ VXEXUEV

7KLV PD\ VHHP SDUDGR[LFDO EHFDXVH  
JURZ RI WKHPVHOYHV LQ WKH VRXWV RZR  
FRVWV QRWKLQJ %XW JDUGHQHUV DQG I  
FRQILUP RXU DVVHUVLRQV 37KH PRVW D  
FXOWXUH ' ZURWH DHSUDFWLFDLWKRIBBUC  
+RUW LFXOWXUH WHHQW3U & FLOW XSHDN HOF  
WKHPVHOYHV DV ZH NQRZ

7UDQVODWLQJ WKHVH IDFVW LQWR FRPI  
PDQ RU ZRPDQ ZKR WDNHV WZHQR\ KRXU  
VRPH OLWV WOHSDLV DQWRLQ ZRKR UP DLKQJ  
VKHOWHUNG E\ VLPSON JODVV XQGHU DG  
JUDSHV DV WKHLU IDPLO\ DQG IULHQGV I  
YLQHV EXW WR DOO IUXLW WUHHV

7KH &RPPXQH WKDW ZLOO SXW WKH SUI  
SUDFWLFDLWKRIBBUC ZLOO KDYH DOO SRVVI  
H[RWLF DQG DOO GHVLUDEOH IUXLWV Z  
KRXUV D \HDU SHU LQKDELWDQW

,Q IDFV QRWKLQJ ZRXOG EH HDVLHU W  
GLUHFV H[SHULPHQW 6XSSRVH a`` DFUH  
:RUWKLQJ DUH WUDQVIRUPHG LQWR D Q  
LWV JODVV KRXVHV IRU WKH UHDULQJ RI  
DOVR WKDW ILIW\ PRUH DFUHV DUH FRYH  
RJDQL]DWLRQ RI WKH ZKROH LV OHIW WR  
PDUDVFDQGV\*XHURQVWKROJ:JUHHQKRXVH .

,Q EDVLQJ WKH PDLQWHQDQFH RI WKHV  
UHTXLULQJ WKH ZRUN RI WKZKHFKHQDSIHU  
WKDQ h f`` KRXUVLRM ZRXOGDQHBG DERXV  
WKH ae` DFUHV )LIW\ FRPSHWHQW JDUGI  
ZRUN DQG WKH UHVW ZRXOG EH VLPSON  
JDUGHQHUV E\ SURIHVVLRQ ZRXOG VRRQ

KDQGOH WKH SODQWV %XW² ZHK KD VZHR VNH F  
SUHFHGLQD D F Q DSWFHUV VDULHV DQG DUWLF  
DQG YHJHWDEOHV IRU DW OHDVW d` `` F  
WKLW QXPEHU WKHUH DUH ac e`` DGXOW\  
WKHQ HDFK RQH ZRXOG KDYH WR JLYH a  
ZKROH YHKDWH KRXUV RI ZRUN ZRXOG EHF  
DPRQJ IULHQGV DQG FKLOGUHQ LQ EHDX  
WKDQ WKRVH RI WKH OHJHQGDU\ 6HPLUD  
7KLV LV WKH EDODQFH VKHHW RI WKH C  
HDW WR VDWLHW\ IUXLW ZKIDFK ZMRDKIDYE  
DEXQGDQFH QRZ VR VFUXSXORXVO\ UDW  
KDV WR UHFNRQ HDFK KDOISHQQ\ ZKLFK  
ODQGRZQHUV  
,I RQO\ KXPDLW\ KDG WKH zFRDQGLRXW  
FRQVFLRXVQHVV RQO\,J.D.YH LW WKH SRZ  
,I LW RQO\ NQHZ WKDW FRZDUGLFH RI V  
UHYROXWLRQV KDYH VWUDQGHHG XQWLO

9,

: H FDQ HDVLO\ SHUFHLYH WKH QHZ KRUL  
UHYROXWLRQ  
(DFK WLPH ZH VSHDN RI UHYROXWLRQ  
FKLOGUHQ ZDQWLQJ IR²R GK D V UN HEQW D D G W  
VXLFLHQW LI HYHU\RQH HDWV DFFRUGLC  
LJQRUDQW WRROV RI UHDFWLRQ VWDUY  
LQ a z i k DW VKDOO ZH GR" '  
/HW WKHP GR WKHHLUFIZRUHW ZIZO O DVH  
\$W ZKDW WKHQ VKRXOG WKH KXQGUHQ  
DVSK\LDWHG WRGD\ LQ VPDOO ZRUNVKR  
GD\ WKH\ UHJDLQLQW KWKHO IFRQWLLQ XH WF  
IDFWRULHV DIWHUL QV KWHYR Q QWLRQ XH:W

IRU H[SRUW ZKHQ WKH\ VHH WKHLU VWRF  
EHFRPLQJ VFDUFH DQG YHJHWDEOHV GL  
(YLGHQWO\ QRW 7KH\ ZLOO OHDYH WKH  
D PDFKLQHU\ ZKLFK ZLOO HQDEOH WKH Z  
ZKHHO WKH\ ZLOO FDUU\ UHYROXWLRQ L  
ZLOO KDYH FDUULHG LW LQWR LQVWLWX'  
+XQGUHGV RI DFUHV ZLOO EH FRYHUHG  
GHOLFDPWH ILQJHUV ZLOO IRVWHU WKH J  
DFUHV ZLOO EH SORXJKHG E\ VWHDP LP  
DUWLILFLDO VRLO REWDLQHG E\ WKH SX  
RFFDVLRQDO ODERXUHUV ZLOO FRYHU W  
DQG H[SHULPHQWV SDUWO\ E\ WKRVH ZK  
WKH JUHDW DQG SUDFWLFDO VSLULW RI  
LOOXPLQHG E\ WKH WKH EULS & MQ EMD FRIQDO C  
\$QG LQ WZR RU WKUHH PRQWKV WKH HI  
ZDQWV DQG SURYLGH IRRG IRU D SHRSO  
H[SHFWDWLRQ ZLOO DW OHDVW EH DEOF  
WR WKHLU DSSHWLWH  
,Q WKH PHDQZKLOH SRSXODU JHQLXV  
DQG NQRZV LWV ZDQWV ZLOO ZRUN DW I  
FXOWXUH WKDW ZH DOUHDG\ FDWFK D JC  
H[SHULHQFH WR EHFRPH XQLYHUVBWKDLW  
XQNQRZQ DJHQW RI FXOWXUH ZKLFK PDN  
WKH ODWLNXXVGNRDEJKW FRQFHQWUDWH  
KDVWHQLQJ WKH JURZWK RI SODQWV \$ (C  
PDFKLQH WR JXLGH WKH UD\ V RI WKH VX  
QR ORQJHU VHHN VXQ KHDW VWRUHG LQ  
H[SHULPHQW WKH ZDWHULQJ RI JDIQH<sup>2</sup> VPRM  
UDWLRQDO LGHD FRQZFLFYKHZL EOWS HUPW I  
VRLO WKRVH OLWWOH OLYLQJ EHLQJV Q  
DQG DVVLPLODWH WKH FRPSRQHQW SDU\  
7KH\ ZLOO HQS%HXUWPHQW XV VWRV KHUH  
UHDOP RI HDQKV UHPDLQ LQ WKH UWBKOWK  
SURFHVVHV RI FXOWXUHHLQFNOH DSSODE  
LQ WKH VWUXJJOH DJDLQVW LQG XVWULD  
DQG OX[XU\ LQ UHWXUQ IRU DJUHHDEOH  
SUDFWLFDO LQ WKH SURFHVVHV WKDW U

RI /HW XV OLPLW RXUVHOYHV DW SUHVH  
LWKH VWXG\ RI WKH QHHGV RI PDQ DQG  
7KH RQO\ WKLQJ WKDW PD\ EH ZDQWLQ.  
LQLWLDWLYH

: LWK RXU PLQGV DOUHDG\ QDUURZHG L  
LQ RXU PDWXUH DJH ZH KDUGO\ GDU<sup>2</sup>H W  
EHIRUH YHQWXULQJ RQ DQ RSLQLRQ RI R  
KXQGUHG \HDUV ROG WR NQRZ ZKDW DQ  
,W LV QRW IRRG WKDW ZLOO IDLO LI EI  
ZDQWLQJ WR WKH UHYROXWLRQ

2I DOO WKH JUHDW GD\ V RI WKH )UHQFI  
JUHDWHVW ZDV WKH RQH RQ ZKLFK GHO  
)UDQFH WR 3DULV ZRUNHG DOO ZLWK WI  
GH ODUV SUHSDULQJ LW IRU WKH IrWH R  
7KDW GD\ )UDQFH ZDV XQLWHG DQLPDV

RI WKH IXWXUH LQ WKH ZRUNLQJ LQ FRP  
\$QG LW ZLOO DJDLQ EH E\ WKH ZRUNLQ  
HQIUDQFKLVHG VRFLHWLHV ZLOO ILQG W  
RSSUHVVLQRQ ZKLFK KDV KLWKHUWR GLYL

+HQFHIRUWK DEOH ~~WR KDVQ E P P Y H Q W H R S E~~  
LQFUHDVH ~~VH V Q P D Q Q~~ FUHDWLYH IRW ~~W K H V Q B Z~~  
ZLOO PDUFK WR WKH FRQTXHVW RI WKH

&HDVLQJ WR SURGXFH IRU XQNQRZQ EX  
QHHGV DQG WDVWHV WR EH VDWLVLHG  
RI HDFK RI LWV PHPEHUV DV ZHOO DV W  
ZKHQ IUHHO\ FKR VHQ DQG IUHHO\ DFFRP  
HQFURDFKLQJ RQ WKH OLIH RI RWKHUV

,QVSLUHG E\ ~~DE R U Q B D W K H J I H H O L Q Q B L~~  
PDUFK WRJHWKHU WR WKH FRQTXHVW RI  
FUHDWLRQ

\$ VRFLHW\ WKXV LQVSLUHG ZLOO IHDU  
ZLWK ~~R X W K H~~ FRDOLWLRQV RI WKH SD ~~W K H~~  
LQLWLDWLYH RI HDFK DQG DOO WKH GD  
SHR ~~S Q H H Q~~ LXV

%HIRUH VXFK DQ LUUHVLVWLEOH IRUFH  
1RWKLQJ ZLOO UHPDLQ IRU WKHP EXW W

WKHPVHOYHV WR WKHURIDULQRJWRIZ ~~Q~~ ~~N~~ ~~B~~ ~~D~~ ~~(~~  
XS E\ WKH 6RFLDO 5HYROXWLRQ

( † } † ^ • ~ OE

d `ac gaa QRZ HPSOR\HG LQIBO~~Q~~QWKHQ  
LQFOXGLQJ WKH ~~RWDWHDZUGG~~QdDaQeH :ZF  
WKH FRQVWUXFWLRQ DQG PDLQWHQDC  
SURGXFWLRQ UHDFKLQJ WKH YDOXH R  
EHLQJ ...d`fsgii ```

<sup>3</sup>6KDEEOH RI D 'XNH' LV DQ H[~~SUHVVL~~  
VRPHZKDW IUHH UHQ~~G~~PRQ~~Q~~U~~H~~RI~~U~~OR~~MS~~  
WKLQN LW H[~~SUHV~~~~V~~~~U~~~~D~~~~S~~MLV PHDQLQJ

7KH PXQLFLSDO GHEW RI 3DULV DPRX(  
DQG WKH~~V~~~~F~~~~K~~~~R~~~~D~~~~U~~~~L~~~~W~~ ZHUH aba `` ` `` IUD

1R IDOODF\ PRUH KDUPIXO KDV HYHU |  
<sup>3</sup>2QH GD\ 5HYROXWLRQ ' ZKLFK LV SUF  
SDPSKOHWV VSHDNLQJ RI WKH 5HYRO)  
VXSSRVHG ZKLFK LV DEVROXWHO\ ZUI  
UHSUHVHQWDWLMHV~~DF~~Z~~H~~U~~Q~~~~P~~H~~Q~~W KDUF  
IDOODFLHV LQ~~a~~5XgV~~V~~L~~D~~H~~L~~U~~a~~X~~V~~eK LV WKI  
OLNH 5XVVLD RI ~~W~~~~B~~~~S~~U~~H~~~~F~~~~U~~~~D~~~~S~~~~W~~~~R~~~~G~~~~S~~~~D~~~~S~~~~F~~  
GHVFULEHG DV D <sup>3</sup>&RQVWLWXWLRQ ' E  
\*RYHUQPHQW 7KH 0LQLVWU\ LPSRVHG  
EXGJHW LW FKBVH WR SURSRVH

7KH GHFUHH RI WKH c` 0DUFK E\ WKL'  
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, W VHHPV WKDW W R K Q & R, F P X Q I D V M D / G R X ( L P S R U W D Q F H R I D I U H H F K R L F H L Q W K 7 K H L G H D O R I U H O L J L R X V & R P P X Q L V W F R P P R Q L W L V E \ P H D O V L Q F R P P R Q V W K H L U D G K H V L R Q & R P P X Q I U R Q W L D Q W V O ( , F D U L D Q V K D G J L Y H Q X S W K L V U H O L J L G L Q L Q J U R R P E X W D W V P D O O V H S D U E W R W K H D W W U D F W L R Q V R I W K H P R P H C H D F K W K H L U K R X V H D Q G G L Q H D W K R F D W W K H F R P P X Q D O V W R U H V

. U R S R V Q N 5 Q V V L D H Q D Q 3 U L R Q R Q S a h h g

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\$ Q H Z H I Q G D H G L W L R Q R I L W K D V E H H Q D Q G 6 R Q V L Q W K H L U 3 6 K L O O L Q J / L E U D

& R Q V O S W S D U W L W L R Q P p W S U R T X E H D X R V S X E O L V K H G E \ \* X L O D G R P I Q R W Q L @ h W K H : 7 R X E H W D F R I Q F O X V L R Q V E X W L W L V D U F V R X U F H V Z K L F K S U R Y H Z K D W F D Q & E X I D V P D U D V F E O H U B R Q F H 3 D / U H L 3 R W I D H V W H 3 Q W L ' a h h e D Q H [ F H O O H Q K X V S U R D F R W L H I D O W Z E R X 5 L V O 3 H U U L V H a E h Q p V H L F Q X W H W Q X U L Y H E H W H / H F R X W H X [ 3 D U L L W p a & K E \ Q ( R U J q Q H / H L P R G L F W L R Q Q D J W L E X O % D X W D O + D F K H H W W H 5 R W K D P V W H D G E ( S H ) U L H P D I Q W R Q G F R X O W a h Z L W K R X W H R W D Q K H H ) L I F O G ' H R I H V O R U ) D F ' : R U N V K E S W K H D X K R R D V 1 H O V S R Q 6 R Q

6 X P P L Q J X S W K H I L J X U H V J L Y H Q R Q D . L Q K D E L W D Q W V R I W K H W Z R G H S D U W P I



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*May you find forgiveness for yourself and forgive others.*

*May you share freely, never taking more than you give.*

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