

that while Socialism teaches that a change of circumstances will effect a change of character, Christianity teaches that a change of character will effect a change of circumstances. This is but one hint, out of many which might be suggested, to mark the essential distinctions which exist between these competing faiths. As he scrutinizes these differences one by one, the student will perceive at length that even those who call themselves Christian Socialists are in many instances Socialists first, and Christians afterward, if they find that Christianity can be used to buttress their opinions; while the true disciples of Jesus are Christians first, and Socialists afterward, if they find that logically, and in loyalty to their Master, they must become such.

He should not forget that the current interest in social problems is traceable to nineteen centuries of Christian teaching more than to any other cause whatsoever, and in countries where Christianity has never been a dominant influence in the lives of the people there is no serious agitation on these questions; He should at the same time frankly admit, in the interests of truth, that organized Christianity has often been a long distance behind the social ideals it was charged with proclaiming and exemplifying by its Founder. This should be credited, however, to human infirmity, and not to Christianity itself. In any case the Christian minister, like every other student of contemporary history, is bound to distinguish between the social spirit of the age, which may have one origin, and any economic scheme which is co-existent with it, and may have a totally different origin.

Going on to discover if possible a 'via media' between the extremes of acceptance and rejection of the doctrine, Dr. Eckman declares that 'the minister should apply the social teachings of Jesus fearlessly, but equitably, never being deceived into supposing that all Socialists are altruistic and all individualists are selfish.'

'On the one hand, extreme Socialists lie open to the charge of caring little for the Golden Rule, when it stands in the way of their accomplishing the revolution which they are inciting; and on the other hand, there are individualists who are proving by heroic sacrifices their faith in the brotherhood of humanity. There are, as Kingsley and Maurice recognized long ago, 'unsocial Christians and unchristian Socialists.'

'As the authorized interpreter of the social teachings of Jesus, he should strive to meditate between the radical Socialists, who are hostile to the Church, and the conservative churchmen, who are impatient of Socialism's methods and ignorant of its motives. One way to deal with Socialism is to regard it as an unmitigated menace to modern civilization, to anathematize it as anarchism (which of all things in the world it is not), and to denounce it as a wicked fanaticism which must be exterminated at any cost. But this is a very bad and futile way to meet it. Too many ministers have already adopted this misguided policy, with the result that they have helped to widen the breach which yawns between the Church and the hand-workers. It is their business to relieve instead of increase the misunderstanding of organized Christianity's attitude toward economic and social reform, which clouds the minds of so many working people. It is perfectly fatuous to tear away from Socialism as though it were a malignant contagion to be shunned by all self-respecting persons. As N. P. Gilman says, 'A people that refuses to talk of Socialism declares its own Philistin

ism; a church that dreads to inquire how far Jesus Christ was a communist has lost too much of his spirit.'

'It would seem as if the Christian minister were in a peculiarly advantageous position to deal fairly with the economic aspects of the social problem. He is not personally identified with those capitalistic interests which might be presumed, under other circumstances, to influence his judgement. It is true that he derives a large share of his financial support from those who are essentially committed to things as they are. But the average clergyman is much beyond the reach of the bread-and-butter argument, so far as it relates to his own comfort; while over against any disposition which might lurk in his bosom, to permit himself to be unduly affected by the advocates of the current economic regime is the traditional alliance of his profession with the interests of the unfortunate classes, whose miseries, it is claimed, are accentuated by the deplorable conditions of our modern civilization.'

#### WHAT IS SMOKE?

The gases leaving a chimney weigh approximately 30 pounds for each pound of coal burned, this weight consisting of one pound of elements in the coal and 29 pounds of air. This figure (30 pounds) is not arbitrary, as these proportions vary more or less, but for the purpose of illustration will suffice. A portion of this amount of air enters into combination with the fuel in the combustion process, while another portion is not used, but is present as a surplus. Thus a large amount of gas escapes from the chimney. If combustion is complete this gas may be considered as composed of two groups: (a) Products of complete combustion; (b) unused air, which are imperceptible gases giving no visual indication of their presence at the chimney top, so that one would not know whether fire was present in the furnace below or not, yet such gases are the legitimate and proper products of combustion. But if combustion is incomplete, the gases are composed of three groups: (a) and (b) as before, with the addition of (c), the product of incomplete combustion, and it is from this imperfect combustion that the material which gives the black color to the gases is derived. This coloring matter consists of minute particles of carbon which are derived from the gases that are distilled from the coal. When placed on the fire carbon is in combination with hydrogen as one of the components of the fuel. This hydrocarbon gas is expelled by the heat of the fire, and by further heating the combination is broken up, the carbon and hydrogen being separated. Inasmuch as carbon in its free state at all known ranges of temperature is a solid body, it assumes a black appearance after it leaves the furnace and becomes cooled. Thus when the combustion gases from the chimney are of a dark hue, it is because they are coloured with minute particles of carbon, or soot. Thus smoke may be more particularly defined as the coloring matter in the combustion gases rather than the entire mass, although when smoke is present a condition of incomplete combustion necessarily prevails, resulting in the escape of invisible but combustible gases, and it is this condition rather than the black particles of carbon which are instrumental in carrying away undeveloped heat,