



Woman Toiling as a Stoker in an English Munitions Plant.

By George MacAdam.

NOW that as a nation we are settling down to the task of developing our maximum efficiency, both military and industrial, so that we may take a fitting part in the great world war, we begin to hear talk—constantly increasing in volume—of using women to fill the ranks of industry depleted by the call of men "to the front."

The talk of putting women in men's places, and the demand that they receive equal pay therein, either of which would have dumfounded the nation less than a generation ago, is today received without any surprise, and, so far as public opinion is concerned, without any dissent.

The foundation for this quiescence was undoubtedly laid by the suffragettes, who, in their long, many-voiced campaigns throughout the land, have striven to convert us from the old orthodoxy that woman's place is the home, to the creed of the feminist that sex is an artificial and tyrannical delimitation in both politics and industry, and that woman's place is where she chooses it to be.

Then came the great world war with its drafts upon man power "for the front," with its drafts upon woman power to fill up the depleted ranks of industry. The amazing accounts that came to us of what the women of Europe, particularly the women of England, were accomplishing in their new fields, how adequately they were taking the places of the absent men, led to but one conclusion—that woman had at last been tested out in industry and had more than met the test, that experience had put its unmistakable O. K. upon the creed of the feminist, that sex indeed was but an artificial and tyrannical delimitation in either politics or industry.

There recently arrived in this country, however, a series of pamphlets which gives an account much at variance with all the others that we have received since the women of England took to war work. This tells us that, judged not as self-sacrificing patriots but simply as motor units in the industrial machine, women are inferior to men. In short, it brings us back to the old orthodoxy.

These pamphlets are reports made by the British Health of Munition Workers Committee which was appointed in September, 1915, by the Minister of Munitions, with the concurrence of the Home Secretary. The committee has twelve mem-

bers, all especially qualified by technical knowledge and experience. Its Chairman is Sir George Newman, M. D.; and it includes two women members, Miss R. E. Squire and Mrs. H. J. Tennant.

The committee took evidence in various industrial centres from employers, representatives of workers, and other interested persons, and made numerous special studies and investigations. In addition, members visited a large number of factories and workshops and discussed matters with the management, foremen, and individual workers.

Up to the present the committee has issued fifteen memoranda. These deal with matters of general interest, such as welfare supervision, Sunday labor, hours of work, employment of women, &c., and of technical interest, such as ventilation, lighting, eye strain, canteen construction, and so on. From these memoranda I have extracted and condensed only those parts which have a bearing upon the industrial efficiency of women and upon the effect of labor on women's health and on their maternal function, both present and prospective.

There is nothing partisan, nothing emotional in these memoranda. They present a grim picture of a nation which is straining every nerve to overcome the foe. Just as England recognizes the necessity of using up its man power on the battle front, so it recognizes the necessity of using up its woman power in industry. England recognizes that

more than ever in the past should consideration now be given to the well-being of young girls fresh from school, of the prospective mother, and of the mother whose care is especially claimed by her infant during the early months of its life; for more than ever is their welfare of importance to the State, and much more than ordinary is it threatened by conditions of employment.

But in the awful emergency that now faces England, "maximum output" is the watchword in the management of its munition factories. And so in these memoranda we find the individual, both man and woman, dealt with as a "human machine." Health and welfare are of prime importance only so that "the maximum output * * * be secured and maintained for any length of time." If there be an imperative demand for immediate "maximum output," health and welfare must be allowed, for the time being, to go by the board. Everything must yield to "the imperative necessity of war."

Judged as a "human machine," these

Man's Labor the Best,

British Committee Decides;

Woman Handicapped

The Frailer Sex Lacks Nothing in Patriotism, But Needs More "Days Off"—Endurance in Munition Plants

memoranda show that, compared with man, woman has less strength, less endurance; that she can undergo neither such long hours nor such long periods of labor; that she cannot stand the strain of night work; that her body, physiologically different from man's, is subject to "certain ailments and forms of physical disability" that are "readily caused or at least accentuated" by various forms of body activity, and that these ailments are "far-reaching in effect"; that the lifting and carrying of heavy weights, "all sudden, violent, or physically unsuitable movements in the operating of machines," and prolonged standing, are "highly provocative causes of trouble to women and girls."

"The committee is satisfied," says a memorandum, "that there is a significant amount of physical disability among women in factories which calls for prevention and treatment."

But aside from the relative merits of men and women as "human machines," there are some other details in the memoranda which are of grave concern. Mention is made of "matters, particularly of discipline and conduct, in which helpful oversight is especially needed in the case of women and girls." We are told that watchfulness is needed over "the conduct of foremen toward women workers," over "the character and behavior of fellow-women workers." We hear of "the homes and younger children that must inevitably suffer," of "family life defaced beyond recognition." And the recommendation is made that "wherever other labor is available, the employment of mothers with infants is to be deprecated, as is also that of the mother of any young family."

The first memoranda issued by the committee was in November, 1915, and had reference to "Sunday labor." It had then been discovered that it was no mere spurt of intense activity that was needed in the munition factories; it was a question of efficiently settling down into the harness for a long, hard pull. To quote:

The problem of Sunday labor * * * is—as regards munition workers—primarily a question of the extent to which workers actually require weekly or periodic rests if they are to maintain their health and energy over long periods.

The great majority of the employers consulted were unfavorably disposed to Sunday labor, but on account of the heavy demand for output had been forced into it. Already the Home Secretary had issued, for the whole United Kingdom, fifty orders permitting Sunday labor by "protected" persons, i. e., women and young persons under 18 years of age. The following conditions were usually imposed:

That women and young persons shall not be employed on two consecutive Sundays; that they shall have time off on Saturday; that they shall only be employed on Sundays in case of emergency; that they shall be employed for a portion of the day only.

And the memoranda continues:

The evidence before the committee has led it strongly to hold that if the maximum output is to be secured and maintained for any length of time, a weekly period of rest must be allowed. * * * Speaking generally, the need for this relief from work on Sunday is more urgent for "protected" persons than for adult males.

In subsequent reports, issued after the munition workers had been under consideration over a year's observation, we find the same opinion held on the relative endurance of the sexes, on the question of hours that can be worked. For instance:

It may be stated broadly that conditions which press hardly upon the average man press, because of her different constitutional development, with greater severity upon the average woman; while similarly, though con-

ditions of mental fatigue are probably equally injurious to boys and girls, conditions of muscular strain well borne by the ordinary boy may be highly detrimental to the girl of corresponding vigor and physique. It is therefore especially important that women and young girls should be relieved from those conditions of overstrain to which they are now so widely exposed.

Adult male workers are almost universally employed on double shifts. The committee found:

They appear on the whole to be standing the system well, more particularly where relief is given at the week ends. The committee sees no reason to suggest any change. Women workers are employed sometimes on twelve-hour and sometimes on eight-hour shifts, but the latter arrangement is becoming, the committee is glad to note, increasingly common.

Some very interesting data as to the relative industrial efficiency of the sexes are to be found in a special report made by H. M. Vernon, M. D., and issued by the committee as an appendix to one of its memoranda. For the purpose of comparing results, Dr. Vernon divides the various types of labor investigated into five, namely, "very heavy," "heavy," "moderately heavy," "light," and "very light." As the result of the statistics gathered, he finds that "very heavy" and "heavy" work "are not well suited to women"; that the "light" type "had better be confined to women, as it is a waste of muscle" to let men or even youths engage in it, and that the "very light" types of labor "should evidently be confined to women and girls."

Shellmaking is a typical example of "moderately heavy" labor. To quote Dr. Vernon:

At one shell factory where the male operatives were being largely replaced by women, I was informed that though the women attained a good output in most operations, they produced only about half as many shells as the men did in that particular operation, since they had not the necessary strength.

Turning aluminium fuse bodies is another operation that the investigator classified as "moderately heavy," the operatives standing all day at capstan lathes. In the period under observation, the doctor found a surprising amount of "broken time" and "sickness." He says:

I have made the arbitrary assumption that operatives who put in less than 45 hours per week of actual work out of a nominal 58½ or more, did so because of sickness rather than slackness.

Thus in a seven-week period no less than 12.4 per cent. of the weeks were short weeks, (averaging 28.6 hours,) and 5.4 per cent. of them were absent weeks. Dr. Vernon continues:

There can be no doubt that the frequent occurrence of these short and absent weeks was due very largely to fatigue resulting from the strain of the heavy lathe work, for women engaged in light sedentary occupations showed only about a third as many lapses.

Not only did he find that "moderately heavy" work had a serious effect upon the health of the women operatives, but he also learned that even when engaged on the "moderate" and "light" types of work the women have less power of application, when working on a 10 or 12-hour shift, than have the men, although the latter are engaged in heavier work.

Several sets of operatives, both male and female, were kept under close observation for many days so that their power of application might be investigated. The men engaged in "heavy" work, almost without exception, "were found to stick to their work with admirable persistence, and it was very seldom that they rested even for a minute." On the other hand, the women engaged in "moderately heavy" work

rested for times which in aggregate amounted to one and a half hours out of the

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Man's Labor Best, Says British Commission

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twelve-hour day, and over an hour out of the ten-hour day, in addition to the hour or so of compulsory rest required for attention to their lathes at the hands of the toolsetters.

To investigate more closely the effect of long hours upon the health of operatives the committee instituted a series of intensive inquiries among munition workers. At the time of preparing the particular memoranda in which this investigation is mentioned (January, 1916,) only a few returns relating to women operatives had been collected. So far as these returns go, "they do to some extent suggest progressive deterioration of health in proportion as the operatives had been employed for long hours and for long periods." It is important to remember that at the time this "progressive deterioration" was noted the women had been at work in the munition factories only a little more than a year.

"The imperative necessity of war" has revived, after almost a century of disuse, the night employment of women in factories. Prohibited for the textile trades by the factory legislation of 1844, it disappeared gradually in Great Britain, and also in other countries, until it was banished by international agreement from the twelve European countries which signed the convention drawn up at the Berne Conference in 1906. The agreement was based upon the results of

inquiries into the effects, economical, physical, and moral, of night work for women. To quote:

Now once more all these half-forgotten facts are in evidence in the munition factories. In a working class home the difficulty in obtaining rest by day is great; quiet cannot easily be secured; and the mother of a family cannot sleep while the claims of children and home are pressing upon her; the younger unmarried women are tempted to take the daylight hours for amusement or shopping; moreover, sleep is often interrupted in order that the midday meal may be shared.

Attention is called to the fact that the hours between 3 A. M. and 6 A. M., and 4 A. M. and 7 A. M., coincide with the period when, apart from industrial fatigue, vitality is low.

A few women of rare physique withstand the strain sufficiently to maintain a reasonable output, but the flagging effect of the majority is not only unproductive at the moment, it has its influence also upon subsequent output, which suffers as in a vicious circle. There seems little appetite for the meal which occurs between 1 A. M. and 3 A. M., and it is often of a most unsatisfactory character.

Instances are mentioned of women so fatigued that they wouldn't make the effort to go from their work to the mess-room.

Welfare officers are of use to workers of both sexes in such things as the engagement of new labor, the keeping of a register of available houses and lodgings, advising the management of a scarcity of

these or of the inadequacy of transit facilities, assisting workers in regard to feeding arrangements, &c.

In addition to the matters which concern women workers equally with their male comrades, there are certain other matters—particularly of conduct and discipline—in which helpful oversight is especially needed in the case of women and girls, if the highest and most enduring efficiency is to be attained. As examples of such matters, the committee would mention the various questions raised in respect of the conduct of foremen toward women workers; of the character and behavior of fellow women workers; of the maintenance of suitable and sufficient sanitary accommodations; of the worker's own state of health; of her capacity to withstand the physical strain and stress of work; of her power to endure long hours, overtime, or night work.

Of the effect upon the home and family of woman's entry into munition work the committee speaks with blunt directness and a grim acceptance of "the imperative necessity of war." It says:

While the urgent necessity for women's work remains, and while the mothers' time and the time of the elder girls is largely given to the making of munitions, the home and the younger children must inevitably suffer. Where home conditions are bad, as they frequently are; where a long working day is aggravated by long hours of traveling, and where, in addition, housing accommodation is inadequate, family life is defaced beyond recognition.

"Clearly everything it is possible to do should be done," continues the report, "to reconcile the mother's conflict of in-

terests between her duties to her home and her children and her work on munitions. Wherever other labor is available the employment of mothers with infants is to be deprecated, as is also that of the mother of any young family."

It must not be inferred that there is any disposition to belittle the services that the women of England are rendering in this crucial hour. In various places in the memorandum the committee state that "they appreciate the exceptional importance of women's labor in the present emergency." Nor is there any lack of appreciation of the splendid patriotism that the women have displayed.

The engagement of women in the manufacture of munitions presents many features of outstanding interest. Probably the most striking is the universal character of their response to the country's call for their help. . . . In the character of the response lies largely the secret of its industrial success, which is remarkable. The fact that women and girls of all types and ages have pressed and are pressing into industry shows a spirit of patriotism which is as finely maintained as it was quickly shown. Conditions of work are accepted without question and without complaint which, immediately detrimental to output, would if continued be ultimately disastrous to health.

It is, asserts the committee, for the nation to safeguard the devotion of its workers by its foresight and watchfulness lest irreparable harm be done to body and mind both in this generation and the next.