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The German Insurance Laws

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Source: *The Economic Journal*, Vol. 6, No. 22 (Jun., 1896), pp. 283-294

Published by: Wiley on behalf of the Royal Economic Society

Stable URL: <http://www.jstor.org/stable/2956520>

Accessed: 26-06-2016 13:54 UTC

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rate of loans and discounts has been kept at less than two per cent. In 1893 it was without exception 1.55 per cent. When some co-operative bank has raised its rate of discount too high, as in the case of that at Belpasso, where it once got to ten per cent., this brought down on it the swift and public reproof of Professor Luzzatti, who declared he could no longer consider it as a co-operative bank.

Thus the people's banks, by greatly facilitating the operations of the country's credit-market, without abusing that credit or falling short in their range of activity, have increased their net profits from 4,250,000 francs in 1880 to 6,514,000 in 1893. Of the latter amount 4,827,854 francs were distributed to the members of the 493 banks in dividends. The remainder was thus divided:—Ordinary reserve, 763,243 francs; extraordinary reserve, 393,512 francs; sum at the disposal of the Administrative Council bestowed in great part on benevolent and provident undertakings, 211,256 francs; specially distributed among employees, 379,738 francs; benefit, 107,529 francs; ready cash, 113,723 francs.

Nevertheless this wonderful record must not cause us to share the illusions of J. S. Mill. He believed in the advent of industrial peace as soon as working men should partake in the profits of capital and in management. Many still fall into this error, and we have witnessed Mr. Price lately inveighing against co-operation, because it had failed to realise all expectations.

The truth is that co-operation is a social institution which, when worked with care and on sane principles, can materially assist the working man and all other step-children of fortune who wish to ameliorate their position. Co-operation is not a socialistic, much less an ecclesiastical, institution; from these bodies hostilities have assailed her, and against them I for my part have had to fight. At her last congress, at Bologna, there were yet echoes of that fight, but they were echoes of victory and triumph. She, strengthened by struggle, goes her way, and goes forward, bearing aid to the worker so long as she remains free and individualist.

GIUSEPPE FIAMINGO

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### THE GERMAN INSURANCE LAWS.<sup>1</sup>

It is well known that even before the repressive legislation of 1878 the German Government were anxious to find some means of manifesting their practical interest in the welfare of the working classes. Such a counterblast to Socialist agitation became perhaps even more necessary when that agitation had been suppressed but not silenced. Dr.

<sup>1</sup> For much that is contained in this paper I am indebted to the Report on the Labour Question in Germany drawn up by the Secretary to the Royal Commission on Labour, and to the original material from which that report is derived.

Schäffle has said that, though the law 'against the generally dangerous efforts of Social Democracy' proved effective in putting an end to the terrorist attitude of the party before 1878, it rather strengthened than weakened the disposition of the working classes to believe in the desirability of replacing the existing order by the anticipated glories of the Socialist State. It is not surprising, therefore, that 1881 should have seen not only Prince Bismarck's attempt to create an innocent form of organisation by reviving the old guilds of handicraftsmen, but also a definite proposal to deal with the question of insurance. Still it is always possible to exaggerate the importance of this motive. After all, the legislation proposed in 1881 was but one step further on that path which the Imperial Government had already been treading. From the middle of the century onwards there had been a decided tendency on the part of Prussia to supplement the voluntary system by compulsion, but as long as there appeared to be any hope of achieving the desired result by means of private associations or local methods the Imperial Government appears to have been reluctant to put forward any uniform scheme. Voluntary funds of some kind or other had existed ever since the mediæval guilds framed regulations for the assistance of members incapacitated from supporting themselves. Miners had had their special funds from the 13th century onwards, voluntary up to 1854 and afterwards compulsory. The Prussian Industrial Code of 1845 attempted to compensate for the abolition of compulsory guilds by empowering communes to compel employers to organise insurance funds and workmen to subscribe to them. With the rapid development of labour organisations in the sixties there arose naturally a desire for a standard law, which, whilst recognising the unions' funds, should not interfere directly with their management. Consequently the Industrial Code of 1869 was content to uphold the local and compulsory regulations, which had grown up by degrees in the various States, but to exempt all workmen from their operation who could be shown to subscribe to a voluntary fund. Difficulties arose subsequently as to whether such exemption could be claimed by subscribers to any fund, or whether the rules of the fund must be such as could be approved by the State. The result was the law of 1876, exempting only those who subscribed to an authorised or registered fund.

Still it was found that in practice very few communes availed themselves of their right to form compulsory funds, and that a large number of voluntary funds omitted to seek registration. Hence a strong feeling amongst the supporters of workmen's insurance that the existing law was both anomalous and inadequate. Local variations, unimportant at a time when there was little migration from one locality or from one industry to another, became a hardship in a period of frequent changes. Moreover, the actual dissolution of many Socialist organisations after 1878 and the dispersal of their funds made an appreciable difference in the necessity for increasing the number of compulsory

funds. Add to this that the law of employers' liability was in urgent need of amendment, and it is clear that a multiplicity of causes prompted the Imperial message announcing that 'the healing of social ills cannot be effected entirely by repressing the excesses of the Social Democrats, but must be equally sought by positive endeavour to promote the welfare of the working classes.'

Accordingly in 1881 a Bill was introduced to amend the law regarding employers' liability. Its provisions gave rise to considerable difference of opinion, and since the limits of an employer's liability could not be defined without revising the whole question of aid afforded to workmen during incapacity to work it appeared best to proceed first with insurance against sickness. Thus it happened that the Sick Insurance Law of June 15th, 1883, preceded that on accident insurance by the space of one year.

By these laws, already familiar to readers of the *ECONOMIC JOURNAL*, provision had been made for sickness more or less temporary, and for disability, whether partial or total, resulting from injury incurred in the course of employment. For the disability which comes in the course of nature, and for permanent invalidity, the third and most important of the Insurance Laws has made, at any rate, a partial provision. I say 'partial' because amongst the many criticisms levelled at the German pension scheme none is more common, and perhaps few are better founded, than that of the inadequacy of the relief afforded. After prolonged discussion the Invalidity and Old Age Insurance Law was passed in May, 1889, and received the Imperial sanction in June of the same year. It was not, however, until April 1st, 1891, that it came into force, so that it has not yet been in operation for as much as five years, too short a time to entitle us to do more than suggest certain tendencies which its working seems to foreshadow. Its scope is greater than that of the previous laws, since with very few exceptions it makes insurance obligatory upon all persons over sixteen years of age and engaged in any industrial pursuit for which they receive wages not exceeding £100. The exceptions have led to some uncertainty in detail, but the general intention of the framers of the law appears to have been the inclusion of all persons directly dependent for their subsistence upon employment by others; for small employers or independent workmen insurance is optional, not compulsory. Apparently, too, the type of work in the minds of the legislators was the work of a mechanic, since certain occupations involving mental labour of a higher kind are especially exempted. This is probably the reason, to take only one instance, why nurses must insure themselves and governesses go free. A desire to avoid over-centralisation prompted the adoption of a local system whereby district insurance institutes (*Versicherungsanstalten*) were established throughout the empire, governed by a board composed partly of salaried officials, partly of representatives from the employers

and employed. Except that the workmen receive compensation for loss of wages incurred through attendance, these representatives are unpaid. *Vertrauensmänner* or local agents may be appointed for carrying out the business of the committee, and a State Commissioner appointed by the Government watches over the doings of the local people, whether agents or committee members, lest the interests of the Government or of other insurance institutes should be in any way imperilled. Finally, every district must have its court of arbitration composed of an equal number of assessors from employers and employed, and presided over by a Government official.

Persons insured are entitled to an allowance in case of permanent invalidity or after they have attained the age of seventy; if not already subject to the sick insurance law, they may also be afforded such medical care as may prevent the necessity of having to grant them an invalid pension. A subscriber refusing to submit to such precautionary measures forfeits his claim. To obtain an invalid allowance it is necessary to have been a subscriber for at least five years of forty-seven weeks each, the margin of five weeks being left to allow for want of employment and similar contingencies. For an old age pension the minimum term is thirty contributory years, but in neither case is the subscriber at liberty to cease his payments at the end of that term. On the contrary, if still able to work, a workman in receipt of an old age pension must continue to pay the premiums required from any other workman receiving equal earnings. Seventy years is the minimum age at which such pensions are granted, but an invalid pension may be given at any age, provided that the institute is satisfied both that the disability is genuine and that it extends to other kinds of work besides the special trade formerly followed by the invalid. It has been further defined as inability to earn one-third of the wages of the class to which the workman has belonged for the last five years. Incidentally, I may say that the comparatively small proportion of pensions granted to invalids is ascribed by the Socialist deputies to the Reichstag to the difficulty necessarily involved in proving a negative.

As forty-seven weeks constitute a contributory year, the time required for qualification may be materially shortened by counting these periods consecutively. An invalid pension can then be earned in just over four years and a half, and an old age pension in twenty-seven years and six weeks. Payments may, however, be to a certain extent intermittent without disqualifying the insured person. Intervals due to military service or illness for which the patient is not himself responsible are not counted against him, but any other cessation of payments either defers the period of qualification, or, if extending to four years, obliges the subscriber to compensate for the time lost by five years' contribution in place of four. Illness due to accident furnishes no ground for claiming an invalid pension if the sufferer is

already receiving an allowance under the Accident Insurance Law. Invalid pensions may also be at any time withdrawn if a change occurs in the sufferer's condition which enables him to work.

The amount of the pension payable varies with the premiums paid, and these again vary with the wages received. For insurance purposes all German workmen are divided into four wage classes, and the subjoined table shows the premium payable every week by the workmen in each class, as well as the proportion paid out towards each pension and the total weekly allowance in sickness or old age. The premiums have been fixed for ten years and at the end of that time will be subject to revision, but it is not anticipated that even at the end of eighty years the maximum payments will exceed  $2\frac{1}{2}d.$  in Class I.,  $4d.$  in Class II.,  $6d.$  in Class III., and  $7\frac{3}{4}d.$  in Class IV. Half these premiums are paid by the employer, and half by the employed; the workmen's share, which is alone given in the table, is deducted from their wages as in the case of sick insurance. The State contributes fifty marks to every pension, and the insurance institutes sixty marks to every invalid pension, besides a weekly proportion of the premiums paid; to old age pensions the institutes contribute this weekly proportion only. For an invalid pension all premiums paid are taken into consideration, for an old age pension only those 1410 weeks in which the highest premiums have been paid.

Wage Class.	Weekly Wage.	Premium Payable.	Proportion Received Back.		Weekly Pension Payable.		
			In Invalid Pension.	In Old Age Pension.	In Invalidity.		In Old Age.
					After 5 years' Contribution.	After 50 years' Contribution.	
I.	s. d. 5	d. $\frac{3}{4}$	d. $\frac{1}{4}$	d. $\frac{1}{2}$	s. d. 2 2 $\frac{1}{4}$	s. d. 3 0	s. d. 2 0 $\frac{1}{2}$
II.	9	1	$\frac{3}{4}$	$\frac{3}{4}$	2 4 $\frac{1}{2}$	4 9 $\frac{3}{4}$	2 7
III.	13 9 $\frac{1}{2}$	1 $\frac{1}{4}$	1	1	2 6 $\frac{1}{4}$	6 2	3 1 $\frac{1}{2}$
IV.	18 4 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2 8 $\frac{1}{4}$	7 11 $\frac{3}{4}$	3 8

As a matter of fact, any individual pension will be almost certain to fall somewhere between the different classes, since the wages of the workman have probably not remained stationary, but £5 6s. 5d. and £9 11s. represent the extreme limits of the annual allowance in old age, £5 14s. 8 $\frac{3}{4}d.$  and £20 15s. 6d. the lowest and highest invalid pension. This the framers of the law do not regard as representing a competence; 'it was never the intention of the Act to provide aged and invalid persons with a sufficient income for independent livelihood, but simply to aid them by an augmentation to any other provision or assistance they might possess or be able to secure.' Consequently the law does not in any way obviate the necessity for some public

provision for the needy, even if after a longer trial it prove to diminish the burden laid upon the poor-law.

The machinery by which the scheme is worked presents some practical difficulties. Contributions are paid by means of stamps of a special kind affixed by the employer to a receipt card divided into forty-seven spaces, one for each week of the contributory year. These cards bear the day and year of issue and are numbered in regular succession. When full they are returned to the insurance institute by which they were issued, and should the insured person change his residence frequently, all these cards would have to be collected from the different institutes when the time came for substantiating his claim. As each card bears a reference to the previous one it is possible to trace the history of any individual, and to determine the proportion due towards his pension from each institute. When the claim has been substantiated the district post-office is notified of the fact and advances the allowance in specified instalments, recovering the amount at the end of the year from the insurance institutes. The system of cards has not been without its prejudicial effect upon the reception accorded to the law. Though severe penalties are enacted against employers or other persons convicted of putting special and private marks upon a card with a view to conveying information about the person insured, there is still a lurking suspicion in the minds of some amongst the workmen that it will be easy for employers to consult a sort of official black list compiled in this way at the insurance offices.

It remains to consider what are called the 'transitory provisions' of the law, and the stipulations with regard to the reserve fund. The two are closely connected, for the whole system presupposes that, though a period will arrive when a balance can be struck between the number of allowances and the capital accumulated to meet them, the benefits of the law are, in the meantime, to be extended to all persons already qualified by age or infirmity for the assistance which their successors will earn by the payment of premiums. Obviously this immediate benefit to be conferred upon an indefinite number of persons introduces a grave element of uncertainty into the calculations, which is to be met partly by frequent readjustments of the reserve fund, partly by the State subsidy, already mentioned, of fifty marks to every invalid pension. It was decreed that persons becoming invalids within the first five, or septuagenarians within the first thirty, years after the Act came into force were to be treated as having paid the proper contributions, provided that they had been employed in a trade or business included under the Act. This employment must have continued five years before invalidity to qualify the person for an invalid pension, and three years before the passing of the law to qualify him for an old age pension. Wage-class I. is the basis for reckoning the average rate of wages during the time by which the probationary period is shortened in the case of invalid pensions, whilst for old age

pensions the actual rate of wages is taken into consideration. In order to substantiate a claim under the transitory provisions the applicant must provide himself with certificates showing the duration of all employments since 1886, the duration of the interruptions, if any, and the causes of them, the rate of wages since 1888, the duration of every illness entailing incapacity to work, and the duration of all military or naval service after January 1st, 1886. Persons claiming invalid pensions must also prove that they have paid the necessary premiums for the space of one year. To tide over the period during which this uncertain number of allowances will become due the State pays a sum to be devoted, as already specified, to subsidising invalid pensions, amounting to £320,000 in the first year, and gradually rising to £3,450,000 in the 80th year. After that it is estimated that this subsidy may gradually be extinguished, and that the whole burden of the allowances, then expected to reach £12,520,000, can be borne by employers and employed. The law intends the scheme to be ultimately self-supporting, though at present it is by no means clear, in view of increasing costs of administration, that this desirable result will be attained.

Meanwhile the reserve fund is to be so fixed for the first ten years that at their close it will be equal to one-fifth of the estimated capital needful to supply the payment of the probable allowances falling due during that term. Any deficiency during this first contributory period must be met during the next, which is fixed at five years, and so on until the 80th year, due allowance being made for the augmentation obtained by the addition of interest to capital. Interest has been reckoned at  $3\frac{1}{2}$  per cent., but it has been suggested that the large amount of capital to be invested will possibly force up the price of securities and proportionately lower the interest obtainable.

It is exceedingly difficult to draw up any comparative statistical table worthy of the name. Even the official returns issued by the Imperial Insurance Office (so far as I have been able to get them) seem little but a wilderness of figures from which it is difficult to draw any very illuminating conclusions. As to the guide to the system drawn up by that office for the Chicago Exhibition, I can only say that it completely succeeds in darkening counsel by words without knowledge, as it presents the astonished reader with some amazing percentages and no sort of explanation as to the method of obtaining them. That, whilst the percentage of pensioners per 100 persons insured increases from 1.20 in the first year to 12.60 in the fiftieth, the cost of management should remain stationary looks more like a pious opinion than a well-grounded expectation, more especially since the increase is anticipated almost entirely amongst claims for invalid pensions, which are infinitely the most troublesome and therefore the most expensive to establish. It already appears that the proportion of costs to premiums, which in 1891 was about 4.18 per cent., in 1893 had become 5.21 per cent. This increase, however, is apparently smaller than that in the number of



pensioners. It also appears from the official statistics that the proportion of claims for invalid pensions, which after due investigation are found to be substantiated, is considerably smaller than in the case of old age pensions. Up to the 1st of October, 1894, the total number of old age pensions claimed was 294,248; of these 79·29 per cent. were granted, whilst the percentage in the case of invalid pensions was 69·04, or ten less than in the former case. The statistics up to April 1st, 1895, show that the same proportion had been fairly maintained, the percentage of claims allowed being respectively 79·52 and 69·99.

But it would be impossible to go into every detail connected with so elaborate a scheme. I would merely suggest some few points which are perhaps worthy of consideration.

1. It has been said, and with some show of justice, that the actuarial basis of the scheme is open to suspicion. All calculations made as to the probable amount of invalidity and the probable mortality before the age of seventy are based upon Behm's tables relating to railway workers, compared, where possible, with the confessedly defective invalidity statistics for different occupations included in the census of occupations of 1882. It is doubtful whether statistics drawn so largely from one industry, and that an industry as peculiarly situated as railway work, will be confirmed by experience. Further, the results obtained for men have been applied to women, though the authors of the memorandum upon which the law is based admit this procedure to be a mere assumption. In any case the degree of invalidity must of necessity be very difficult to forecast, and yet the conditions must be assessed in advance so as to cover allowances and expenses of every kind. Further, even if the contributions can so far be satisfactorily adjusted, their regularity is liable to disturbance by sickness, military service, and lack of employment. Perhaps the first two of these disturbing elements may admit of calculation beforehand (though what is to be said in the case of war?); it is hardly possible to forecast with any certainty the number of the unemployed.

2. From all sides come complaints of the unnecessary complications arising from the threefold scheme and the expense involved in constant negotiations between the different authorities, especially between the Sick Insurance and Old Age and Invalidity Insurance Institutes. Employers in the country districts declare that the burden is greater than agriculture can bear, and authorities as eminent as Dr. Freund, the chairman of the Berlin Court of Arbitration for Invalid Insurance, and Dr. Bödiker, head of the Imperial Insurance Office, are demanding simplification and reform. Indeed, it seems clear that if something is not soon done in this direction by the Legislature, its hand will be forced by the practical administrators. Only in November last an important conference was held at Berlin at which Dr. Bödiker advocated the amalgamation of accident and old age insurance on the ground that both were concerned with the granting of pensions and might therefore be worked by a single authority. Dr. Freund, on the other hand,

wished to combine sick and invalid insurance, and both alike were in favour of abolishing the cumbrous, laborious, and expensive system of cards and stamps. Attempts are being made on all sides to bring about a practical amalgamation, either by organising a common system of medical aid for invalids having claims either upon sick or upon invalid allowances, or by combining the courts of arbitration attached to the different kinds of insurance, or by working in concert with the poor-law authorities. Again, it is often asked that the system should be made more simple by being made more far-reaching. Only, say the malcontents, make every German citizen of either sex whose income is below the stated level of 2,000 marks be obliged to contribute so much weekly into a common fund which will insure him against sickness, accident, or old age, and we can then entrust the working of the whole to the communal authorities already charged with the administration of the poor-law. They will be in possession of all necessary information, and the increased burden thrown upon the tax-payers by making them responsible for accident insurance will be counterbalanced by the relief which will be afforded to the poor-rates. In fact, lessen opportunities for dispute by making the obligation uniform and universal.

3. There is no doubt that as the law stands at present the opportunities for litigation are almost infinite. As Mr. Spender has well put it, the individual insurer 'may appeal in the first instance against inclusion under the Act at all, and if he loses the case in a lower court he may take it to a higher. He may protest against the calculations made from time to time on his insurance cards, and here also he has a right of appeal. Or if his claim to an allowance either for old age or infirmity is rejected by the institute he may take his case to the Arbitration Court, and once again both parties have a legal right of revision in respect of the court's decision. Disputes may arise, not only between individuals and the insurance institutes, but between the institutes and the sick or accident insurance societies provided by previous legislation, and these also entail litigation. Or, finally, there may be conflicts between the insurance institutes and the poor-law authorities.' And as an incidental proof that these opportunities for litigation are not merely theoretical, it may be mentioned that during the years 1892 to 1894 statistics show appeals against the decision of the Arbitration Courts to have been made by the insured persons with increasing frequency though diminishing success.

The total number of appeals was

		Insured.	Institutes.	Succeeded.	
				Insured.	Institutes.
1892	3571	56·8 %	43·2 %	28·9	62·1
1893	3194	67·8 %	32·2 %	21·5	61·4
1894	2923	70·4 %	29·6 %	19·6	64·8

Of these appeals eight out of every thirteen, or nearly two-thirds, concerned invalid allowances.

4. Besides litigation there are other practical administrative difficulties. Many districts find it impossible to procure the necessary staff. Employers complain of the strain upon their clerical staff occasioned by the system of stamping, and in the eastern provinces, where the duties connected with the issuing and booking up of the cards fall upon persons holding honorary appointments, the dissatisfaction is so great that the substitution of salaried officials is anticipated. In view of such an increase in the already sufficiently numerous bureaucracy it seems a little difficult to credit predictions of diminishing cost of management. A good deal has been said, too, about an observed increase of malingering, which is scarcely likely to admit of any relaxation of official surveillance. Actual storage room for the cards constitutes another practical difficulty; in Berlin it has already been found necessary both to construct a special building and to enlarge it.

5. Criticisms of this kind are however less serious, because more definite and easier to meet, than the vaguer statements made so frequently in the German press, and especially the labour press, as to the effect which the insurance laws have exercised upon wages and profits. In the first place there is considerable difference of opinion as to the class which really bears the burden of insurance. According to the official figures the difference between the sums paid by the employers and employed respectively under the threefold law is in itself inconsiderable, but there is some reason to suppose that the figures given represent rather each party's legal share in the total contribution than what each party actually contributes. A firm of manufacturers in Stuttgart stated to the factory inspector that they paid the whole of the contribution due from their workpeople, since the deduction of any part of it so embittered the workmen against the State provision and made them so little sensible of its benefits. On the other hand, the Social Democrats contend that the whole cost falls upon the workmen, since, besides their own contributions, they bear the burden of the increased taxation upon commodities necessary to furnish the imperial subsidy, whilst the employers indemnify themselves for their enforced contribution by reducing wages or raising the price of the goods they produce. Consequently many Social Democrats regard the Insurance Law as an unsatisfactory substitute for the poor law, which derived its funds to a greater extent from the upper and middle classes and which provided larger allowances. Certainly the reports of the factory inspectors afford some justification for the complaint that wages are, in some cases, reduced after the grant of an old age pension, but it seems only fair to suppose that diminishing ability to work may have something to do with this. On the whole there appears to be some reason for thinking that the prejudice, with which the law was undoubtedly received at first, is diminishing, and that the demand is now rather for reform than repeal.

6. With regard to the influence of the new legislation upon the cost of poor law administration the evidence is again conflicting. A very recent report issued by the Frankfort poor law administrators states that there has been a considerable decrease in outdoor relief, but at the same time an increase in indoor and especially medical relief. This they attribute to the habit fostered by the insurance legislation of speedy recourse to hospital treatment, and to the fact that illness is most frequent during periods of slack work or no work at all, when, owing to the lapse of contributions, the sufferers are not entitled to help from sick insurance funds. In Leipzig it is said that the expense involved in sifting out cases for which the insurance funds are really responsible has increased the cost of poor law administration by 2 per cent. Probably it is still too soon to judge of the extent to which the actual number of persons coming upon the rates will be diminished owing to insurance. It is clear that the scheme will hardly touch the casual labourer, the unemployed, the vicious or dissolute, who constitute the main body of poverty with which poor law administrators have to deal. The poor law we must always have with us, even in Germany. It would be unreasonable, as Mr. Graham Brooks has said in his Report to the American Department of Labour, to look for marked results as yet in this direction. It is something if, as he also points out, the first effect of the new law is a more enlightened care for the sick and injured. Here certainly much is being done, since a speedy and complete recovery is in the interests of employers and of insurance institutes alike. Hence the services of the best surgeons and physicians are gladly retained, hospitals are multiplying, and in many parts convalescent homes and special establishments for the cure of consumptive patients have been erected. Again, in estimating the beneficial results of the laws we must not overlook the facilities afforded for obtaining statistical information. Last, but not least, is to be placed the sense of security which is afforded by at least some provision for old age, however inadequate that provision must appear to English eyes.

That the provision is too small and the age at which it is attainable too long deferred seems to me almost beyond question. It is equally certain that the system is unnecessarily cumbrous, and probably, therefore, unnecessarily expensive. Nor can there be any doubt that, so far, the attitude towards the scheme both of employers and employed has been decidedly mistrustful. All this, however, points, as I have said already, rather to the necessity of reform in detail than to the desirability of repeal, even if such a retrograde step were really possible. It was loudly advocated at first both by social democracy and by reactionary conservatism. But it must be remembered that, German politics are too complicated, German political parties too numerous, and perhaps too hopelessly at variance, to be able always to weigh a great economic question fairly on its merits. In any case the trial has been too short to entitle either the party of repeal or the party of

continuance to an absolute verdict ; where neither has as yet made out its case, it is the reformer who must intervene.

JANET E. HOGARTH

### THE HUNGARIAN ZONE-SYSTEM

ENGLISH economists have rarely paid much attention to the economics of railways. Parliament has failed in the most signal manner to cope with the intricacies of railway rates, and railway experts do not deign to explain or defend their practice by theoretical considerations. It is therefore very interesting to find a theoretical investigation of the uses of railways, and it is refreshing to be assured by a Hungarian that the zone tariff can be justified on purely theoretical grounds.

In a pamphlet entitled *Der gemeinschaftliche Nutzen der Eisenbahnen*, Herr Béla Ambrozovics begins by considering a place from which roads radiate in all directions, and finds that the work done in distributing  $m$  tons of goods equally over the area of a circle whose radius is  $r$  and whose centre is the spot considered, is the same as that of carrying  $m$  tons a distance  $\frac{2}{3}r$ . He then considers the effect of a railway passing through the starting-point which can carry 1 ton  $n$  miles for the same price that 1 ton can be carried 1 mile on a road. He then finds that the locus of all points to which a given number of tons can be carried for a certain price by rail and road combined is a rhombus whose greater diameter is in the direction of the railway and which is  $n$  times as long as the other diameter. We find therefore that where formerly a circle whose area is  $\pi r^2$  was the space within which goods could be carried for a price not exceeding a certain sum ; now (the railway having been made) goods can be carried to any point on the boundary of a rhombus whose area is  $2nr^2$  for the same sum, so that the area of commercial intercourse (*Verkehrsfläche*) is increased in the ratio  $2n : \pi$  by the making of a railway.<sup>1</sup>

It is for those well acquainted with the economics of transport to say whether these geometrical considerations and the further deductions that can be drawn from them are likely to be useful or to have any relation to actual facts ; but it must be confessed that several assumptions are made which are by no means *prima facie* true. But, however that may be, as soon as Herr Ambrozovics proceeds to consider questions of utility, most of his work is vitiated by the fact that he, like Cournot in his later chapters, does not pay sufficient attention to consumer's rent.

In a later pamphlet on the zone tariff in relation to his theory Herr Ambrozovics points out the interesting consilience between his theory and the Hungarian zone tariff. He lays down from theoretical

<sup>1</sup> This is not strictly true, but is approximately so when it is large.