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THE ACTUARY IN DAMAGES CASES— EXPERT WITNESS OR COURT ASTROLOGER?

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1. INTRODUCTION

THIS paper takes its title from the recent judgment of the Court of Appeal in *Auty and Others v National Coal Board (1984)*. Lord Justice Oliver stated that, "as a method of providing a reliable guide to individual behaviour patterns or to future economic and political events, the predictions of an actuary could be only a little more likely to be accurate (and would almost certainly be less entertaining) than those of an astrologer".

The above statement was referred to by Stewart Lyon, immediate past President of the Institute of Actuaries, in his review of the Session 1983–84 at the Institute's Annual General Meeting in June 1984. Although the quoted passage had received all the publicity, he was more concerned with the judgment in the same case given by Lord Justice Waller who erroneously stated that the expectation of life was an average and assumed that everybody lived to that age and then died. Mr Lyon concluded his remarks on the subject by stating that the Appeal Court's handling of the *Auty* case raised the general question of whether the actuarial profession needs to adopt a more active approach to public relations.

The only paper to have been presented to the Institute of Actuaries on the subject of damages was that by John Prevett in 1968. The authors felt that it was time to update that paper to take account of subsequent developments. We also wanted to discuss the role of actuarial evidence in damages cases in a way which we hope will be of interest to lawyers as well as actuaries.

These aims have led to a rather lengthy paper. Section 2 of the paper summarizes the legal background to the current practice and will be familiar to lawyers involved in the area of damages. Section 3 sets out the role which we believe should be played by the actuary. Although the area of application may be unfamiliar to many actuarial readers, the principles will be well known to them. But we hope that the paper will contain something of interest to both professions.

2. THE LEGAL BACKGROUND

In this section we discuss the legal background to the present day practice relating to damages. The law has developed through various Acts of Parliament and their subsequent interpretation by the courts. It is instructive to consider the historical development as an aid in understanding the reasoning behind the decisions handed down by the courts.

Although our discussion is not intended to be exhaustive or definitive we hope that it will prove to be of assistance to those readers not familiar with the law relating to damages. The interested reader is referred to the bibliography for a full treatment of legal practice.

A full list of cases cited is given in Appendix 1.

2.1 *Personal Injury and Fatal Accident Cases*

2.1.1 The Basis for a Claim

A living plaintiff may claim damages at common law for loss resulting from injury suffered in an accident caused by the negligence of another.

In fatal accident cases, the legal personal representatives of the deceased may sue on behalf of the estate for damages under the Law Reform (Miscellaneous Provisions) Act 1934. A claim may also be made under the Fatal Accidents Act 1976 by the dependants of the deceased for loss of dependency.

For fatal accident cases where the cause of action accrued before 1 January 1983, the Law Reform Act damages will usually be greater than those recoverable under the Fatal Accidents Act and consequently no award need be made under the latter Act where a dependant of the deceased is also a beneficiary under his will or intestacy. However, if those entitled under the will or intestacy of the deceased to his estate are not his dependants, then it is possible that awards will be made under both Acts. For later cases, the Law Reform Act damages will be small but will not be deducted from damages awarded to dependants under the Fatal Accidents Act.

2.1.2 *Losses for which Damages may be Claimed*

In a personal injury case, a plaintiff may claim damages for financial loss incurred prior to trial, future financial loss and non-economic loss.

Damages awarded for non-economic loss are conventional amounts, and are intended to compensate the victim, insofar as a sum of money is any compensation, for pain and suffering, and loss of amenity.

Prior to the enactment of the Administration of Justice Act 1982, it was also possible to recover damages for loss of expectation of life, and for loss of services (including a husband's claim for loss of consortium as a result of injuries to his wife). The award for loss of expectation of life was a conventional sum (£1,250 in 1982). The Administration of Justice Act abolished these claims, but indicated that account should be taken of the victim's knowledge that his expectation of life had been reduced in assessing the award for pain and suffering.

Financial loss includes loss of earnings and other benefits of employment, loss of pension, cost of care and attendance, cost of special equipment and treatment, and loss of income in the 'lost years'.

The expression 'lost years' refers to the period by which an injured plaintiff's expectation of life has been reduced. In the case of a man aged 40, the normal expectation of life from population mortality tables is approximately 32 years. If, as a result of the accident, his expectation as assessed by medical experts is, say, 20 years, he may claim damages for loss of income in the 12 'lost years'.

The right of an injured plaintiff to recover damages in respect of the lost years was not established until 1978. Before that, it was customary in such cases for the conventional sum for 'loss of expectation of life' to be awarded, and for future financial loss to be assessed by reference to the plaintiff's reduced expectation. The decision of the Court of Appeal in *Oliver v Ashman (1961)* confirmed that damages could not be recovered for loss of earnings during the lost years. However, in *Pickett v British Rail Engineering Ltd. (1978)* the House of Lords, overruling *Oliver v Ashman*, decided that an injured plaintiff *was* entitled to damages in respect of the lost years. These damages were to be calculated by reference to the amount remaining after the plaintiff's own living expenses had been deducted from his net annual earnings.

When a claim was brought under the Law Reform (Miscellaneous Provisions) Act 1934 on behalf of the estate of the deceased, the award normally comprised the conventional sum for loss of expectation of life, funeral expenses and, if death was not instantaneous, an award for pain and suffering and for financial loss from the date of accident to the date of death. However, in *Gammell v Wilson (1981)*, the House of Lords decided that the principles of *Pickett* applied equally in the case of a fatal accident, and that damages could be recovered by the estate in respect of the lost years. Thus, if the man of 40 mentioned in our earlier example had been killed, his estate could claim damages for loss of income in the 32 lost years.

As a result of *Gammell v Wilson*, claims in fatal cases brought under the Law Reform Act increased dramatically, extinguishing the Fatal Accidents Act claims in many cases. However, the Administration of Justice Act 1982 amended the Law Reform Act so as to exclude the survival of any claim for the lost years for the benefit of the estate, for cases where the cause of action accrued after 1 January 1983. Thus, for these cases, the Law Reform Act damages are now very small. For cases where the cause of action accrued before 1983 (many of which may still come to trial) the decision in *Gammell v Wilson* applies, and extensive damages may be recovered under the Law Reform Act.

Damages awarded under the Fatal Accidents Act compensated the dependants only for economic loss. As Lord Wright stated in *Davies v Powell Duffryn Associated Collieries Ltd. (1942)*:

> There is no question here of what may be called sentimental damage, bereavement or pain and suffering. It is a hard matter of pounds, shillings and pence . . .

and per Lord Diplock in *Mallett v McMonagle (1969)*:

> The purpose of an award of damages under the Fatal Accidents Act is to provide the widow and other dependants of the deceased with a capital sum, which with prudent management, will be sufficient to supply them with material benefits of the same standards and duration as would have been provided for them out of the earnings of the deceased had he not been killed. . . .

Furthermore, the award was reduced if the dependant gained any financial benefit, other than the proceeds of insurance policies or pension schemes, as a consequence of the death. Thus, in the case of an elderly widow supported by her son, who received money from his estate on his death, any award under the Fatal Accidents Act would probably have been reduced by the amount of her inheritance.

Again the Administration of Justice Act 1982 introduced a number of changes to claims under the Fatal Accidents Act. The major amendments were

(i) the introduction of a new head of damage, namely damages for bereavement. This claim may be made by the wife or husband of the deceased or, in the case of a child, by his parents. A sum of £3,500 may be awarded under this head
(ii) the requirement to disregard all benefits accruing to the dependants as a result of the death
(iii) the widening of the definition of dependant to include, *inter alia*, a former spouse of the deceased, and a 'common law' husband or wife.

The calculation of the annual dependency under a Fatal Accidents Act claim is carried out by summing the expenditure of the deceased on each of the dependants. Alternatively one may deduct from the deceased's net earnings the amount he spent on himself to ascertain the dependency. In addition, one may take into account the value of goods and services provided for the benefit of the dependants, e.g. vegetables provided from the garden, repairs, decorating etc.

Initially, it was thought that the same approach should be used in calculating the deduction in respect of the deceased's own living expenses in the lost years. However, in the Court of Appeal, two cases *(Harris v Empress Motors Ltd.* and *Cole v Crown Poultry Packers Ltd. (1983))* were heard together to decide upon the lost years deduction. Lord Justice O'Connor, who gave the leading judgment, said that the deduction should comprise the deceased's own living expenses, plus a proportion of the living expenses of the family, such as mortgage payments, rates, gas and electricity bills, etc.

Thus, for a married man with no other dependants, the deduction in the lost years might be 50%, whereas the dependency claim, if he had been killed, might have been two-thirds.

It is clear that in the case of an injured plaintiff whose expectation of life has been severely reduced, it may be in the best interests of his (prospective) widow to await his death and claim for loss of dependency, rather than for the injured man to claim during his lifetime.

The assessment of the lost years claim for injured child plaintiffs is highly speculative, and no award would normally be made. In the case of a single person, some allowance may be made for the possibility of future marriage. There are, however, many unresolved questions concerning the assessment of the lost years deduction, and interested readers are referred to two articles by D. E. Evans and K. M. Stanton in the *New Law Journal*, June 1984.

2.1.3 *The Assessment of Damages*

In order to provide some consistency of awards between cases (and hence to encourage settlement out of court where possible), personal injury and fatal accident cases are normally heard by a judge sitting alone. Jury trials are, however, the norm in Northern Ireland and in the Republic of Ireland.

If liability is found, or admitted, the judge must then decide on the quantum (amount) of damages to be awarded.

The basic principle underlying the assessment of the quantum of damages was stated by Lord Reid in *British Transport Commission v Gourley (1955)*:

> A successful plaintiff is entitled to have awarded to him such a sum as will, so far as possible, make good to him the financial loss which he has suffered, and will probably suffer, as a result of the wrong done to him for which the defendant is responsible.

The awards for non-economic loss are conventional figures which are revised, irregularly, to take some account of inflation. Pre-trial pecuniary losses will in many cases have been agreed before trial. The plaintiff is also entitled to interest on these awards (see section 2.1.4).

The calculation of future pecuniary loss is the most complex, and most controversial, part of the assessment of the quantum of damages. In many cases, it forms the major part of the award. To perform the calculations, assumptions have to be made (either explicitly or implicitly) about the future mortality of the injured plaintiff, the mortality he would have experienced had it not been for his injury (or death), the future mortality of any dependants, future rates of investment return, inflation and taxation, future rates of increase in the plaintiff's salary, the probability of future redundancy or ill-health of the plaintiff had he not been injured, etc.

In practice, allowance for most of these elements is implicitly incorporated in the multiplier selected by the judge having regard to previous similar cases. This multiplier is applied to one year's net loss (based on current salary), and a deduction may be made from the product to allow for contingencies such as ill-health.

2.1.4 *Interest on Damages*

As mentioned in the preceding section, a successful plaintiff is entitled to interest on his damages. The Law Reform (Miscellaneous Provisions) Act 1934 gave the courts discretion to award interest on damages, and this was amended by the Administration of Justice Act 1969, which made it mandatory for interest to be awarded if the damages exceeded £200.

Subsequently, guidelines as to interest payable on damages were laid down by Lord Denning MR in *Jefford v Gee (1970)*:

(1) Interest on damages in personal injury cases should be awarded to a plaintiff only for being kept out of money which ought to have been paid to him.
(2) The appropriate rate of interest should be that payable on money in court

placed in a short term investment account taken as an average over the period for which it was awarded.

(3) Interest should be allowed on special damages (i.e. pre-trial financial loss as pleaded) from the date of the accident to the date of trial at half the appropriate rate.

(4) No interest should be allowed for loss of future earnings and interest should be awarded on damages for pain and suffering and loss of amenities at the appropriate rate from the date of service of the writ to the date of trial.

In *Cookson v Knowles (1977)* Lord Denning decided that no interest should be payable on the lump sum awarded for pain and suffering and loss of amenities as the judgment was made in the money of the day. The House of Lords in the same case upheld that no allowance should be made for future inflation on economic loss but was not asked to consider the question of interest on non-economic loss. Thus, Lord Denning's judgment held from July 1977 until November 1978, when the House of Lords' decision in *Pickett v British Rail Engineering Ltd.* pointed out the fallacy in this argument.

As Lord Wilberforce stated:

> Increase for inflation is designed to preserve the 'real' value of money, interest to compensate for being kept out of that 'real value'. The one has no relation to the other. If the damages remained nominally the same because there was no inflation, interest would normally be given. The same should follow if the damages remain in real terms the same.

In *Birkett v Hayes (1982)*, Lord Denning defended his decision in *Cookson v Knowles* and held that since the award of damages for non-economic loss was calculated taking into account the effect of inflation during the period from the date of service of the writ until the date of trial, interest awarded on these damages to compensate the plaintiff for being kept out of the capital sum during that period should be low to avoid injustice to the defendant by over-compensating the plaintiff; that interest at 2% was the appropriate rate and should be regarded as a guideline for the rate of interest on such damages in personal injury cases in future.

In *Wright v British Railways Board (1983)* Lord Diplock held that in accordance with *Birkett v Hayes* interest to be awarded on damages for non-economic loss, like the assessment of compensation for that loss, could only be a conventional figure for which the Court of Appeal was generally the best qualified to lay down guidelines. Since judges were required to assess damages for non-economic loss in the money of the day at the date of trial, 2% from the date of service of the writ to the date of judgment represented an appropriate rate of interest. Although the rate of interest of 2% had been recommended at a time when the rate of inflation was high, that guideline should not be varied until the long term trend of future inflation became predictable and expert evidence showed that 2% was no longer the appropriate rate of interest. Having considered, *inter alia*, the rates of return then available on index-linked gilt-edged stocks, Lord Diplock concluded that 2% was still appropriate.

For completeness, it should be noted that, for High Court cases, the requirement to award interest is now given by section 35A of the Supreme Court Act 1981. Interest must be specifically pleaded in the Statement of Claim. Following the Finance Act 1971, any interest on damages is not regarded as income for income tax purposes, so that the entire award is tax-free.

2.1.5 *The Allowance for Inflation*

It might be thought that the allowance for future interest and inflation in valuing future loss should follow the same principles as are applied to the calculation of past loss. However, the courts, when considering future losses, have regard to the dictum of Lord Diplock in *Mallett v McMonagle (1969)*:

In my view, the only practicable course for courts to adopt in assessing damages . . . is to leave out of account the risk of further inflation, on the one hand, and the high interest rates which reflect the fear of it and capital appreciation of property and equities which are the consequence of it, on the other hand . . . Money should be treated as retaining its value at the date of the judgment, and in calculating the present value of annual payments which would have been received in future years, interest rates appropriate to times of stable currency such as 4% to 5% should be adopted."

The Pearson Commission found that:

The present range of multipliers used by the courts . . . approximately corresponds to the assumption that a person who invests his money in the United Kingdom will enjoy a rate of return on his investment of $4\frac{1}{2}\%$ a year after the effects of tax and inflation have been taken into account.

The courts have adopted the 'Diplock approach' to inflation, and expert evidence (from whatever source) as to the future course of inflation has been held to be inadmissible. In *S. v Distillers Co. (Biochemicals) Ltd. (1970)*, Mr Justice Hinchcliffe concluded that the evidence of an economist was inadmissible "since it was based on speculation and hearsay". Lord Justice Oliver's comments on the evidence as to future inflation provided by an actuary in *Auty and Others v National Coal Board (1984)* reaffirmed this view.

2.1.6 *The Effect of Taxation*

It should be noted that, as income from the investment of a lump sum award will be subject to income tax, it is the net (after tax) investment return which is of relevance in determining the present value of future net earnings. The decision of the House of Lords in *British Transport Commission v Gourley (1955)* was that damages should be reduced to take account of the tax which the plaintiff would have paid on his earnings if he had not been injured. In *Taylor v O'Connor (1970)* Lord Reid pointed out that if the widow were to purchase a life annuity of the amount of her net annual loss of dependency, part of the annuity would be subject to income tax, and that the damages awarded would fall short of the amount necessary to provide full compensation if account was not taken of this tax. He commented:

This case is in a sense *British Transport Commission v Gourley* in reverse, for that case instructs us that we must see what the plaintiff really lost taking account of taxation. There damages had to be reduced if taxation was taken into account. Here they have to be increased.

2.1.7 *Benefits to be Taken into Account in Mitigation of Loss*

In general, completely collateral matters cannot be taken into account to reduce the damages payable by the tortfeasor. However, there are certain statutory exceptions to this principle. In addition, an injured plaintiff is expected to mitigate his loss by, for example, taking suitable alternative employment. If the defendant can show that the plaintiff could reasonably have taken steps to mitigate his loss, but has failed to do so, any award may be reduced.

We first consider the proceeds of insurance policies. As Mr Baron Pigott stated in *Bradburn v Great Western Railway (1874)*:

> The plaintiff is entitled to recover the damages caused to him by the negligence of the defendants, and there is no reason or justice in setting off what the plaintiff has entitled himself to under a contract with third persons, by which he has bargained for the payment of a sum of money in the event of an accident happening to him. He does not receive that sum of money because of the accident, but because he has made a contract providing for the contingency; an accident must occur to entitle him to it, but it is not the accident, but his contract, which is the cause of his receiving it.

Thus any insurance benefits received by an injured plaintiff need not be taken into account. For Fatal Accidents Act cases, Section 4(1) of the 1976 Act expressly states that any benefit as a result of death shall be disregarded.

However, in *Auty*, the Court of Appeal agreed with the judge of first instance who rejected the argument that a widow's loss of dependency should include the loss of widow's pension payable on death after retirement. Notwithstanding the requirements of the 1976 Act the judge decided that no such loss was suffered because she was in receipt of a widow's pension as a result of her husband's death in service. Lord Justice Oliver's speech which dealt with this decision is not entirely clear to the authors. It is discussed further by Charles Bennett in a recent issue of *Litigation*.

An injured plaintiff may be awarded an immediate pension by his employer on retirement due to ill-health. This need not be taken into account until the date the plaintiff would normally have retired but after that date it must be offset against pension lost. Lord Reid explained the reasoning for this in *Parry v Cleaver (1969)*:

> It has been asked why his ill-health pension is to be brought into account at this point if not brought into account for the earlier period. The answer is that in the earlier period we are not comparing like with like but with regard to the period after retirement we are comparing like with like . . . There is no question as regards that period of a loss of one kind and a gain of a different kind.

The treatment of lump sums paid on retirement, either as of right or by commutation of part of the pension, is not clear from the above authority. One interpretation would be to ignore any lump sum paid, treating it as a pension benefit received before the normal retirement date, and thus not to be offset against loss of earnings in that period. However, in the case of a commutation lump sum we would suggest that a reasonable approach is to offset the pension which would have been paid from normal retirement age if no lump sum had been taken.

Under Section 2(1) of the Law Reform (Personal Injuries) Act 1948, account must be taken of one-half of the value of certain State benefits which have accrued, and will accrue, for the period of five years from the cause of action. These benefits are sickness benefit, invalidity benefit, non-contributory invalidity pension, injury benefit and disablement benefit.

The Act makes no mention of how benefits payable more than five years after the accident should be treated. Mr Justice Peter Pain, in *Denman v Essex Health Authority (1984)* considered that no credit had to be given for such benefit payments, relying in part on the decision of the Court of Appeal in *Hultquist v Universal Pattern and Precision Engineering Co. Limited (1960)* in relation to disablement gratuity.

In *Nabi v British Leyland Ltd. (1980)*, the Court of Appeal held that unemployment benefit should be deducted in full from a plaintiff's loss of earnings. Supplementary benefit *(Lincoln v Hayman (1982))*, family income supplement *(Gaskill v Preston (1981))* and statutory sick pay *(Palfrey v GLC (1984))*, are similarly treated.

It should be remembered that, in the valuation of lost earnings, it is net earnings which are to be taken into account. Income tax which would have been paid on those earnings has to be deducted following the principles of *Gourley*, as do National Insurance contributions at the appropriate rate *(Cooper v Firth Brown (1963))* and superannuation contributions if the plaintiff was a member of a contributory pension scheme.

2.1.8 *Compensation for Criminal Injury*

It may not be possible for a person who has been injured as a result of a crime of violence to recover damages from the offender. In such cases, compensation may be paid by the Criminal Injuries Compensation Board.

The compensation paid by the Board is intended to reflect the damages which the victim would have recovered had he been able to sue in the civil courts. Therefore the amount awarded includes damages for pain and suffering as well as past and future pecuniary loss. The Board will, however, deduct the full amount of any State benefits received or receivable, as otherwise the State would in effect be doubly compensating the victim.

If the applicant is dissatisfied with the amount of compensation offered, he may ask for a hearing of the Board at which he can argue his case for a review. However, legal aid is not available and the applicant's expenses must come out of the compensation awarded.

2.2 *Unfair Dismissal*

2.2.1 *The Basis for a Claim*

An employee has a statutory right to compensation if he is dismissed unfairly. His claim will be heard by an industrial tribunal, consisting of a lawyer as chairman, with one nominee from each of the TUC and the CBI. The major differences between the tribunals and the courts are that the tribunals are less formal, that each side must usually pay its own costs, and that there are monetary limits to the amounts which can be awarded. Hence the plaintiff may be unable to afford the advice of experts, unless his costs are being met by, for example, his trade union.

The present unfair dismissal legislation is contained in the Employment Protection (Consolidation) Act 1978. If the employee is deemed to have been unfairly dismissed, the tribunal may order the employer to reinstate him or to pay cash compensation. In practice, a cash award is almost always made.

2.2.2 *The Elements of the Award*

The cash award consists of two separate amounts. The basic award comprises the redundancy pay which the employee would have received if he had been made redundant rather than dismissed. Thus this part of the award depends on the employee's salary and service, with an overall maximum basic award, at present, of £4,560. The basic award is made even if the employee suffers no financial loss, e.g. if he immediately obtains new employment at the same salary.

The second element of the award is the compensatory award which is intended to compensate the employee for actual losses resulting from his dismissal. These losses include loss of net earnings to the date of hearing, loss of future net earnings and pension, loss of employment protection rights (e.g. in his new job he would not qualify for redundancy payment until he had been employed for two years) and expenses incurred in finding alternative employment. The maximum amount which can be awarded under the compensatory award is currently £8,000. Under this head the tribunal will take into account benefits received, such as social security benefits and earnings from subsequent employment.

In exceptional cases, the employer may be ordered to pay extra compensation if the tribunal has ordered the reinstatement of the employee, and this has not been complied with, and a further amount may be payable if this refusal is due to trade union activity, racial or sexual discrimination.

2.2.3 *Valuation of Pension Loss*

The approach to the valuation of loss of pension has, in the past, followed the principles set out by Sir John Donaldson in *Copson and Another v Eversure Accessories Ltd. (1974)* on appeal to the National Industrial Relations Court. He identified two separate types of loss: the loss of pension position which has been earned, and the loss of future pension opportunity. He suggested that an indication of the value of the employee's accrued pension rights could be obtained by considering the accumulation of the contributions paid by and in respect of him, and that his loss under this head could be taken as this value, less any refund of contributions paid. Under the second head of future pension opportunity, there would be no loss if the employee had the benefit of a similar pension scheme in his new employment. If this were not the case, some allowance would be made for the employer's future contributions foregone.

It was accepted that this was a rough and ready approach, and that in many cases, the employer's rate of contribution was not appropriate for the purpose of measuring the value of the individual's pension benefits. In *Willment Bros. Ltd. v Oliver (1979)*, the defendant employer produced evidence that at the date of dismissal, the employee's accrued benefits had been secured by his own contributions, as the pension scheme was an insured final salary scheme on a 'controlled funding' basis. However, the tribunal awarded loss of pension based on notional employer contributions, and this was upheld by the Employment Appeals Tribunal.

In 1980, the Government Actuary's Department, at the request of the Central Office of Industrial Tribunals, published a paper suggesting methods to be used in the valuation of loss of pension rights on unfair dismissal. This paper pointed out that the 'contribution method' is not normally appropriate for the valuation of loss of accrued pension rights, unless the period of service has been short. In addition, as a consequence of the preservation requirements introduced in the Social Security Act 1973, the benefit granted on withdrawal after five or more years' service will be a deferred pension. As the tribunals will wish to offset this benefit against the pension benefits lost, a suitable method of calculating the value of this deferred pension is required.

The paper suggested that an actuarial method should be used, and a table of factors for the valuation of accrued pension rights (with some allowance for future salary increases) and deferred pension benefits was given.

The paper went on to suggest that loss of pension for the period of unemployment could be taken as the value of employer's contributions which would have been paid in respect of the employee. For loss of future pension, it was suggested that the contribution method could be used, although it was pointed out that if the new employer did not have a pension scheme, the employee would participate in the earnings-related part of the State Scheme, and might, of course, have a higher salary to reflect the lack of an occupational pension scheme. Another table gave reduction factors to be applied to the value of the pension benefits lost to allow for possible future withdrawal from the scheme, if the employee had not been unfairly dismissed.

It is not essential for pension loss to be assessed by reference to the Government Actuary's guidelines. However, in *Tradewinds Airways Ltd. v Fletcher (1981)*, the Employment Appeals Tribunal held that the Industrial Tribunal should not have based its assessment of pension loss on the evidence provided by an actuary as this figure differed substantially from that which would have been produced by adopting the approach suggested by the Government Actuary's Department.

In *Manpower Ltd. v Hearne (1983)*, the Employment Appeals Tribunal found that the correct approach in valuing future loss of pension in accordance with the Government Actuary's guidelines was to assess the period for which this loss might continue, and to value the employer's contributions for that period, and then to apply the reduction factor to allow for possible future withdrawal from the scheme to past and future pension loss. The tribunal of first instance had allowed for loss of pension for the full period up to Mr Hearne's normal retirement date as his new employment was non-pensionable, but the Employment Appeals Tribunal upheld the company's appeal that account should be taken of the possibility that he might, in future, obtain pensionable employment. Mr Justice Browne-Wilkinson also commented:

In no circumstances should the assessment of loss of pension rights require the applicant to produce, or the Industrial Tribunal to insist upon, elaborate statistical or other evidence on the point. If employers wish to adduce elaborate evidence, they do so at their own expense and risk. The assessment of compensation is essentially a rough and ready matter: the complications inherent in assessing loss of pension rights are no exception to the general rough and ready approach. Elaborate or other statistical evidence is to be discouraged by the Industrial Tribunal.

The TUC Occupational Pensions Bulletin No. 14 (October 1983) commented that the decision in *Manpower Ltd. v Hearne* confirmed the acceptance of the Government Actuary's guidelines on the valuation of pension loss and advised unions that "paid experts (particularly actuaries) are not necessary on either side for this".

2.3 *Wrongful Dismissal*

2.3.1 *The Basis for a Claim*

Under common law, a person may claim damages for wrongful dismissal in breach of contract. For example, if an employee is dismissed without notice, he may claim for loss of salary for the period of notice specified in his contract. However, if it is found that the actions of the employee repudiated his contract, his claim will be unsuccessful. Such claims are brought in the common law courts, and costs may be awarded to the successful plaintiff. Hence the assistance of an actuary, particularly to value loss of pension benefits, is often sought.

A dismissed employee may claim damages for wrongful dismissal, and also bring a claim for unfair dismissal before the Industrial Tribunal.

2.3.2 *The Effect of Taxation*

In many cases, the action is brought by a senior executive, employed on a fixed term contract which has been terminated prematurely. The amount claimed can be high and there is no statutory maximum such as applies in unfair dismissal cases heard by the industrial tribunals. This raises the additional problem of taxation of the lump sum award, which is taxed as a 'golden handshake' under section 187 of the Income and Corporation Taxes Act 1970. Currently, the first £25,000 of any such payment is tax-free, and there are partial reliefs on the next £50,000. The tax payable is assessed by treating the award as income received at the date of termination of the contract.

The principles of *Gourley* also apply to the allowance to be made for taxation in cases of wrongful dismissal. The Court of Appeal in *Parsons v BNM Laboratories (1963)* set out two preconditions which had to be satisfied if *Gourley* were to apply:

(i) the lost earnings which are being compensated would have been liable to income tax had they actually been earned
(ii) the compensation received is not so liable.

The interpretation of these conditions in cases where part of the award (i.e. that in excess of £25,000) is taxable has been approached in a number of different ways. In *Parsons*, Lord Justice Harman took the view, although as *obiter dicta*, that "it would be better . . . to leave the two taxes to set themselves off one against the other" so that the *Gourley* principle should not apply in such cases.

In *Bold v Brough, Nicholson and Hall Ltd. (1963)*, Mr Justice Phillimore decided that the best approach was to split the award into two parts—the exempt £5,000 (as the limit then was) to which he applied the *Gourley* principle, and the excess which was chargeable to tax. The calculations involved in the assessment of the final award were exceedingly complex and, as pointed out by O. P. Wylie and J. E. McGlyne in the *New Law Journal*, June 1978, could be faulted on two points. Nevertheless, this approach has been widely accepted.

Another, simpler, approach was proposed by Lord Hunter in *Stewart v Glentaggart Ltd. (1963)*. He suggested that the damages should first be calculated by reference to the *Gourley* principle, taking account of net future loss, and that this amount should then be increased to allow for any tax payable on the award. This may lead to an award in excess of the gross benefits lost due to the impact of higher tax rates on the lump sum award.

More recently, this approach was adopted by Mr Justice Sheen in *Shove v Downs Surgical plc (1983)*, where a net award of £60,729 was grossed up to £83,477 to allow for tax payable.

It should be noted that if a settlement is made out of court, under which the dismissed employee is granted augmented pension benefits, there will be no charge to tax under Section 187 on the cost of these benefits, provided the arrangement is approved under Chapter II, Part II of the Finance Act 1970 and the total benefits do not exceed Revenue maxima. It is not possible for the courts to order the company to provide additional pension benefits as compensation must be in lump sum form.

2.3.3 *Making Allowance for Future Salary Increases*

It is interesting to note the decision in *re Crowther and Nicholson Ltd. (1981)* where the plaintiffs' service contracts specified that future salary increases would be linked to the Index of Retail Prices. Mr Justice Dillon held that the valuation of loss on termination of their contracts *should* take account of these future increases to which the plaintiffs were contractually entitled. He held that this was not at variance with the dictum of Lord Scarman in *Lim Poh Choo v Camden & Islington Area Health Authority (1978)* that future inflation should not be taken into account in the assessment of damages for personal injury as in that case the plaintiff had no contractual right to an inflation-linked salary.

3. THE ROLE OF THE ACTUARY

The assessment of the lump sum to be awarded as compensation for future pecuniary loss is a task for which the actuary is ideally suited since the calculations involved are exactly analagous to those he performs in the traditional actuarial spheres of Life Assurance and Pensions and in the valuation of Life Interests and Reversions. It is surprising, therefore, that in this country the courts do not make more use of the assistance which can be provided by actuarial techniques in personal injury and fatal accident cases. The right of either party to call an actuary to give evidence in court was confirmed by the Court of Appeal's decision in *Sullivan v West Yorkshire Passenger Transport Executive (1980)*. However, the accepted view was expressed by Lord Pearson in *Taylor v O'Connor (1970)*:

> I do not think that actuarial tables or actuarial evidence should be used as the primary basis of assessment. There are too many variables and there are too many conjectural decisions to be made before selecting the tables to be used.

3.1 *Actuarial Evidence or the Traditional Approach?*

A common misconception is that the so-called 'actuarial' method is a completely different approach to the valuation of future loss from the traditional 'multiplier' method. This is not the case, since the actuary is, in essence, calculating a 'multiplier' (on his chosen basis) to be applied to the net annual loss. In actuarial terminology the 'multiplier' is referred to as an 'annuity value'. Furthermore, in his calculations the actuary can make due allowance for any peculiarities of the case.

Why, therefore, do the judges prefer to arbitrarily pick a multiplier by reference to precedent rather than accept one calculated by an expert? Among the reasons which have been suggested are

(*a*) Actuarial methods give an unwarranted appearance of precision.
Lord Pearson in *Taylor v O'Connor (1970)* commented:

> There would be a false appearance of accuracy and precision in a sphere where conjectural estimates have to play a large part.

(*b*) Actuarial calculations deal only with averages.
Sir Gordon Willmer in *Mitchell v Mulholland (1972)* said that actuarial calculations:

> are, and must be, based on the performance of the average man. This is a matter of probability, but for the purposes of actuarial calculation it has to be treated as a certainty. Yet nobody can say whether an individual plaintiff is an average man, or that he will live for the expectation of life of any average man of his age.

(*c*) Awards would become higher (and less predictable).
"If calculated actuarily (*sic*), these [damages] would be colossal"—Lord Denning in "What Next in the Law", commenting on the Lords' decision in *Gammell v Wilson*.

It should be pointed out that in *Lim Poh Choo v Camden & Islington Area Health Authority (1978)* Lord Scarman held that the mere fact that the total award was high was no ground for the judge reducing his assessment or for its variation on appeal.

(*d*) Costs would be increased, and trials would become longer.

We do not agree that this is a valid argument for discouraging the presentation of relevant expert evidence. As Professor Harry Street pointed out in "Principles of the Law of Damages":

> There is a close analogy between actuarial evidence and medical evidence. Both serve largely to determine the size of the award rather than to decide the issue of liability. Nobody asserts that medical evidence is inadmissible or undesirable on the ground that it takes up valuable time of assize judges and does not assist in deciding whether the plaintiff or the defendant wins . . . And yet, the actuarial issue is much simpler than the medical one.

Professor Street continued to draw the analogy between medical and actuarial evidence by suggesting that if actuarial evidence were more widely accepted, actuarial reports would generally be agreed before trial, thus saving time and money.

(*e*) Judges do not understand the evidence presented, and are therefore unwilling to accept it.

An extension of this point is the possibility that the parties would present conflicting actuarial evidence, and the court would have to decide upon which to rely (although, again, this situation already arises with expert witnesses in other professions).

We do not intend to comment further at this point on these arguments, except to say that there is clearly a problem of communication between the actuarial profession and the judiciary. We return to this aspect in section 3.5.

We would contend that the actuary has a major role to play in the assessment of damages and we would concur with the view of Mr Justice Dickson of the Supreme Court of Canada in *Andrews v Grand and Toy Alberta Ltd. (1978):*

> So long as we are tied to lump sum awards, however, we are tied also to actuarial calculations as the best available means of determining amount.

3.2 *The Use of Actuarial Tables*

In the preceding section it was suggested that calling an actuary to give expert evidence could significantly increase the cost of litigation. An alternative approach therefore is to use published actuarial tables.

As has already been mentioned, the valuation of loss of pension rights in unfair dismissal cases is often carried out by reference to actuarial factors produced by the Government Actuary's Department to assist tribunals in the assessment of loss. However, as the introduction to their paper admits:

> It would be impracticable to devise tables of factors to enable the value of pension rights to be assessed accurately in all cases; a large number of tables would be needed and their application would be complex and would require much fuller information than is generally available to tribunals.

It is likely, therefore, that in the more complex cases, a direct actuarial assessment of the loss of pension rights could produce figures which differ substantially from those produced by applying the Government Actuary's guidelines and thus justify the actuarial fees incurred.

The production of standard actuarial tables suitable for the assessment of future losses in personal injury and fatal accident litigation has been recommended on a number of occasions. The Law Commission, in their "Report on Personal Injury Litigation—Assessment of Damages", published in July 1973 proposed that legislation should be introduced requiring the courts to "have due regard to" any actuarial evidence presented, and suggested that the Lord Chancellor might approve a set of actuarial tables which would then be admissible in evidence. Such legislation has not been enacted, but in 1982 a Joint Working Party of actuaries and lawyers was set up to consider, *inter alia*, the production of standard tables. These tables, with explanatory notes, were published early in 1984, but it must be stressed that they do not carry any statutory authority. Mr J. P. Gorman, Q.C., sitting as a Deputy Judge of the High Court in *Spiers v Halliday (1984)* held that the tables were inadmissible as evidence had not been presented to prove their correctness! However, this does not preclude the use of the tables in future cases.

The explanatory notes which accompany the tables indicate the circumstances in which the multipliers may be used, and how they can be adjusted when the facts of a particular case differ from the assumptions on which the tables are based, e.g. if normal retirement date is not 65 for a male, or 60 for a female plaintiff. However, in other instances, the assistance of an actuary may be required to determine what adjustment should be made to the standard multipliers.

It should also be noted that the published multipliers take into account the mortality of the plaintiff only. In the assessment of a dependency claim under the Fatal Accidents Act it is necessary to evaluate the probability of the joint survival of husband and wife (or father and child) in each future year. Clearly the publication of standard tables which would cover all possible combinations of two lives would be a major task.

Whilst we would welcome the more general use of actuarial tables in the assessment of damages, we feel that there are many instances where the direct involvement of an actuary is desirable. The actuary may be required to give evidence that the multiplier chosen from the tables is appropriate or to explain what adjustments have been made to the published figure. In some more complex cases, and in all loss of dependency claims, the actuary may have to determine the loss directly from first principles.

It is appropriate to mention here an alternative method of assessment which is, indirectly, based on an actuarial approach. This is to base the award on the cost of notionally purchasing an annuity to replace the plaintiff's lost income. Whilst this approach is unlikely to be applicable in cases where the plaintiff's future mortality has been affected (unless an insurance company is prepared to quote improved annuity rates), it *would* appear to be appropriate in straightforward cases. The major objection to this method has been that an annuity gives no protection against inflation. However, as a number of life offices now offer index-linked annuities, this argument is no longer valid. It should also be possible to make an allowance for taxation so that the plaintiff's net income from the annuity would be equal to the net income lost.

A further objection to this approach is that there are expense and profit margins implicit in the annuity cost which the defendant should not be required to meet if the plaintiff does not, in fact, purchase an annuity. This objection is consistent with the fact that no allowance is normally made for the cost of investing the award or obtaining investment advice if it is assumed that the plaintiff would invest directly in stocks and shares.

The cost of an annuity has been used by industrial tribunals as a measure of the loss of pension rights on unfair dismissal where the employee is close to retirement and the lost pension can be accurately assessed (*Smith, Kline and French Laboratories Ltd. v Coates (1977)*).

3.3 *Instructions and Data*

We consider now the information required by an actuary who has been asked for advice in connexion with a claim for damages.

It is, of course, imperative that the actuary is sure as to who is his principal. In some cases, the actuary to a company's pension fund may be asked to assist in a damages case. However, it must be made clear that if he is advising an injured plaintiff (who may happen to be an employee of the company), then the man himself is the actuary's principal and will be responsible for his fee, which may, of course, be part of the costs awarded if his claim is successful. If, on the other hand, the company requires advice as to the compensation being claimed by a dismissed executive for loss of pension rights, this advice is being provided to, and should be paid for by, the company and not the pension fund. Occasionally, the actuary may have to decline to give advice due to a potential conflict of interests.

The scope of the actuary's calculations must be clearly defined at outset. In a personal injury case, initial instruction from the solicitors may ask "for assistance in connexion with the valuation of losses sustained by Mr X as a result of a car accident". The actuary should immediately clarify whether he is being asked to value loss of future earnings or loss of pension or both.

Although the calculation of pre-trial loss is an accounting exercise which does not require any specifically actuarial skills, it may be helpful if the actuary carries out the valuations of both past and future loss since much of the information required is common to both and in addition there is a greater likelihood of inconsistency if they are carried out independently.

As in any valuation exercise, the actuary who is asked to value loss of earnings or pension rights in a damages case needs a certain amount of basic information.

Some of this information may be difficult, or even impossible, to obtain and suitable assumptions or estimates may have to suffice. This is not a situation peculiar to damages cases, but the actuary must remember that he may be asked to explain and justify his assumptions under cross-examination in court and he must accordingly ensure that the implications of these assumptions are understood and approved by his instructing solicitors and Counsel.

The actuary also requires instruction as to the items to be taken into account in his calculations, and the values to be placed on them. For example, a dismissed executive may claim for loss of a company car, and the actuary needs instruction as to the financial value to the plaintiff of this benefit. In a personal injury case, which might come to court six years after the date of the accident, the actuary needs instruction as to the salary which the plaintiff would have been earning at the date of trial as a base for his valuation of future loss. The actuary could not, for example, assume that the plaintiff's earnings had increased from the date of the accident in line with National Average Earnings as the courts are unlikely to accept this assumption without some corroborating evidence.

It would certainly be helpful, in many cases, for the actuary to attend a conference with Counsel before commencing his calculations, so that his instructions are clear. It may be that the initial calculations have to be revised nearer the date of trial to take account of changes in, for example, tax allowances, National Insurance contributions or State benefits. However, it is comparatively easy to update calculations when the principles have been established.

If it is not possible to arrange a preliminary conference with Counsel, it may assist the instructing solicitors if the actuary produces a checklist of the information and instructions required. This should save a considerable amount of the time and expense taken up by the prolonged correspondence which in our experience usually ensues when the required information is not provided at outset.

In Appendix 2, we show specimen checklists for a personal injury or fatal accident claim, and for a wrongful or unfair dismissal claim. Not all of the items listed will be relevant in every case; neither are the lists exhaustive. However, they should ensure that the actuary obtains the majority of the information he needs in such cases.

3.4 *Valuation Basis*

3.4.1 *General principles*

In the preceding section, we stressed the importance of having reliable data upon which to base the calculation of loss. It may be, of course, that the court's findings of fact differ from the data upon which the actuary has been instructed to prepare his report. For example, the court may find that the plaintiff's salary at date of trial would have been £10,000, rather than the £12,000 as argued by his Counsel, and as used in the actuary's calculations. In some instances it may be easy to recompute the loss based on the court's findings of fact. In any event, the fact that the valuation of future loss, as calculated by the actuary, is 'wrong' in such a case, is clearly not a reflection on his, or his profession's, ability as an expert witness in the assessment of damages.

However, if the court finds that the actuary's valuation is unacceptable because of the valuation basis, or method, which he has adopted, this *does* imply criticism of the profession. Although the actuary will have discussed his valuation assumptions with Counsel and his instructing solicitors, he must bear professional responsibility for the basis adopted.

Nevertheless, the scope which the actuary has in the choice of basis is limited by what the courts will accept. Thus, as already mentioned, any explicit allowance for future inflation in personal injury or fatal accident cases is likely to be held to be inadmissible, and the actuary should have regard to this in deciding upon the valuation basis.

Lord Blackburn said in *Livingstone v Rawyards Coal Company (1880):*

> . . . where an injury is to be compensated by damages, in settling the sum of money to be given for reparation of damages you should as nearly as possible get at that sum of money which will put the party who has been injured . . . in the same position as he would have been in if he had not sustained the wrong for which he is now getting his compensation or reparation.

We would suggest that, on this authority, the basis to be adopted in the valuation of future loss should be a 'best estimate' of future experience. This might correspond to the basis used in a life office bonus reserve valuation carried out for the purposes of management information, or in the valuation of a pension fund where it is not intended to build up surplus for future discretionary benefit increases. It should also be noted that whilst in many damages cases the future loss extends for a long period, there may be instances in which the period of loss is comparatively short, where a different basis might be considered appropriate as a 'best estimate'.

3.4.2 *Interest and inflation*

The dictum of Lord Diplock in *Mallett v McMonagle (1969)* (quoted in Section 2.1.5 above) that the best approach to inflation was to assume that money retained its value and that the present value of future loss should be calculated by reference to an interest rate of 4% to 5% has generally been adopted by the courts in personal injury and fatal accident cases.

This approach was questioned by Lord Reid in *Taylor v O'Connor (1970)* where he said:

> 'To take any account of future inflation will no doubt cause complications and make estimates even more uncertain. No doubt we should not assume the worst but it would, I think, be quite unrealistic to refuse to take it into account at all.

However, the vâlidity of the Diplock approach was reaffirmed by Lord Scarman in *Lim Poh Choo v Camden & Islington Area Health Authority (1978)* where he stated that:

> Whilst there is wisdom in Lord Reid's comment that it would be unrealistic to refuse to take inflation

into account at all, the better course in the great majority of cases is to disregard it. And this for several reasons. First, it is pure speculation whether inflation will continue at present, or higher, rates, or even disappear . . . Secondly, inflation is best left to be dealt with by investment policy. It is not unrealistic in modern social conditions, nor is it unjust, to assume that the recipient of a large capital sum by way of damages will take advice as to its investment and use. Thirdly, it is inherent in a system of compensation by way of a lump sum immediately payable, and, I would think, just, that the sum be calculated at current money values leaving the recipient in the same position as others who have to rely on capital for their support to face the future.

There are two major questions posed by the use of the Diplock approach

1. Is the best approach to future inflation to ignore it?
2. If this approach is adopted, is 4 to 5% a reasonable rate?

Whilst we would accept that quantifying the levels of future inflation is difficult we would contend that is not reasonable to assume that money will retain its value from the date of judgment. This has the effect of placing a disproportionately high value on future fixed sums.

For example, consider an employee who is forced to retire as a result of an accident at age 55 after ten years' service. His salary is £12,000 a year, and on retirement at age 65 he would have received a pension of two-thirds of his final salary. He is granted a deferred pension on leaving service, payable from age 65, of $10/20 \times \frac{2}{3} \times £12{,}000 = £4{,}000$ per annum which will not be increased before it comes into payment.

If there is no future inflation (or real salary increases) his pension at normal retirement date would have been $\frac{2}{3} \times £12{,}000 = £8{,}000$ per annum. Hence his gross pension lost is £4,000 per annum and after tax this might be £2,800 per annum. This is the figure on which the Diplock approach would be based. If we wish to value this net pension lost at a net rate of interest of $3\frac{1}{2}\%$, which is equivalent to a gross rate of 5% allowing for 30% tax, the multiplier given in the Actuarial Tables is 5·4, giving a loss of

$$£2{,}800 \times 5{\cdot}4 = £15{,}120$$

If, however, his salary is assumed to increase at 5% per annum for the next ten years, it would be £19,547 at age 65, and his pension would be £13,031 per annum or, allowing for 30% tax, £9,122 net, giving a net loss of £6,322 per annum. If, for consistency, we assume a 5% real rate of return, the gross discount rate should be 10% or, say, 7% net after allowing for tax. We have calculated the corresponding multiplier at 7% (as the Tables only show rates of interest up to 5%) to be 3·1 and thus the net loss would be

$$£6{,}322 \times 3{\cdot}1 = £19{,}598$$

or almost 30% higher than the 'Diplock' figure.

It is true that this particular problem will be alleviated by the legislation requiring pension schemes to provide increases to deferred pensions awarded to early leavers after 1 January 1986. However, this will not completely solve the problem as

(*a*) the increases are limited to 5% per annum
(*b*) the legislation refers only to benefits earned in respect of service after 1st January 1985.

For contracted-out pension schemes, the Guaranteed Minimum Pension element of the deferred pension entitlement must be increased in deferment. However, there are three different levels of increase which may be provided, and it would be preferable to take explicit account of the revaluation method adopted, rather than the implicit Diplock approach.

The treatment of increases to pensions in payment also needs to be considered. If the valuation is performed at a relatively low rate of interest, using the Diplock approach, credit is effectively being given for inflationary increases in pensions. However, the pension scheme rules may not provide for guaranteed increases, and the practice of the company may be to give no discretionary increases, or at best to fall short of full index-linking. Hence the Diplock approach over-values the pension benefits lost.

Furthermore, the scheme rules may guarantee 3% per annum compound pension increases, regardless of the actual increase in the cost of living. If, following Diplock, it is assumed that the value of money remains constant, it would seem logical to allow for these guaranteed increases in the valuation of pension benefits. However, we would suggest that in such a situation it would be more sensible to ignore the guarantee on the assumption that increases in excess of inflation would never be granted.

We demonstrate later, in connexion with wrongful dismissal claims, that ignoring inflation can give a much lower award than making explicit allowance for it, due to the effect of taxation.

Despite these problems, we would agree that if it is not acceptable to take account of future inflation then a reasonable approach to the valuation of inflation-linked items is to value by reference to a real rate of return. But is 4 to 5% a reasonable estimate of the future net real rate of return? Michael Ogden, Q.C., in the introduction to the Actuarial Tables for use in Personal Injury and Fatal Accident Cases, pointed out that the availability of index-linked government securities removed the need to speculate as to future real rates of investment return, and suggested:

> It may be thought that the return on such index-linked stocks is the most accurate reflection of the real rate of interest available to plaintiffs seeking the prudent investment of awards of damages.

It would appear that the points raised by Lord Scarman in *Lim's* case are satisfactorily answered by assuming that the plaintiff would invest in index-linked stocks.

David Kemp, Q.C., in the Stop Press Supplement (February 1984) to Kemp and Kemp, Volume II, also put forward this view, and pointed out that "if this approach is adopted as the proper way to take account of future inflation, the logical consequence is that there should be a substantial increase in the multipliers which the court currently applies to the relevant multiplicand". He subsequently considered examples of the multipliers based on this approach with the traditional multipliers. In the case of *Lim* the female plaintiff was aged 42 at the date of trial. A multiplier of 12 was used to value future expenses, but from actuarial tables a multiplier of 24 (2% interest) or 26 ($1\frac{1}{2}$% interest) would have been used.* Thus if the market view of future inflation, as expressed by the yields on index-linked stocks, was borne out and the plaintiff's life expectancy was as predicted, the plaintiff would have been substantially under-compensated under this head of damages.

We would agree that the rate of return on index-linked gilt-edged stocks is an appropriate starting point. However, the yield on such stocks reflects not only the market view of future interest rates and inflation, but also the changing views of investors as to risk and security. Hence short-term fluctuations in the yield on such stocks should not be taken into account.

It would appear to us that an ideal solution (given that the courts are at present reluctant to accept calculations making explicit allowance for future inflation) would be for the House of Lords to consider a test case and decide upon an appropriate rate of interest to use in the valuation of future loss, bearing in mind the existence of risk-free inflation-linked investments. This would be parallel to the outcome of *Wright v British Railways Board*, when the House of Lords confirmed that 2% per annum should be used as the rate of interest in excess of inflation to be awarded on non-economic loss for the pre-trial period, until there was evidence that this was no longer appropriate.

In cases of wrongful dismissal, where the plaintiff was entitled to an index-linked salary under the terms of his contract, direct allowance may be made for inflationary future increases. Alternatively the actuary may allow implicitly for these by performing his calculations at a low rate of interest.

It might be thought that both approaches would give the same result if consistent assumptions were made. However, as we mentioned above, the effect of taxation is to make the results produced by the direct approach higher. For example if the actuary were to perform his valuation at a gross rate of interest of 10% per annum, with allowance for $6\frac{1}{2}$% per annum inflation and 30% tax, his effective discount rate would be:

$$\cdot 1 \times (1 - \cdot 3) - \cdot 065 = \cdot 005$$

If, alternatively, he were to use a gross rate of interest of $3\frac{1}{2}$%, the net discount rate would be:

* As the Stop Press supplement was published before the Actuarial Tables for use in Personal Injury and Fatal Accident Cases, Mr Kemp used figures from actuarial tables published in Kemp and Kemp, Volume I (4th Edition). The Actuarial Tables produced by the Joint Working Party were based on more recent population mortality, with the result that the corresponding multipliers for a female aged 42 from Table 2 of these Tables are slightly higher—24·9 and 27·1 respectively. It is also interesting to note that the Tables show a multiplier of 17·3 for $4\frac{1}{2}$% interest, so that even if $4\frac{1}{2}$% is accepted as the correct net rate of interest to use, the multiplier of 12 actually adopted still appears to be too low.

$$\cdot 035 \times (1 - \cdot 3) = \cdot 0245$$

Hence, the results produced by the direct approach would be considerably higher.

It should be noted, however, that a part of the overall yield in the first example might arise from inflationary growth in capital values, which would be free of tax, so that the assumption of a 30% tax rate might be inappropriate.

In the valuation of loss of pension rights on unfair dismissal, it is acceptable to take into account future salary increases in the calculation of the pension lost. The factors produced by the Government Actuary's Department for the valuation of accrued pension incorporate an allowance for future salary increases. The suggested method of assessing future loss of pension also makes implicit allowance for future salary increases as no discount for immediate payment is applied to the employer's contributions foregone. If the period of future loss is long this might be thought to be over-generous to the employee.

3.4.3 *Real Salary Increases*

It is permissible to take into account future salary increases due to promotion and upgrading (on the present scale), if these can be proved to the satisfaction of the court. Clearly the multiplier approach is not appropriate here, as the net annual loss is not a constant figure. In practice, some ad hoc upward adjustment of the multiplicand and/or the multiplier is normally made to take account of these future increases. Direct allowance for salary increases could be easily incorporated if actuarial techniques were used.

3.4.4 *Taxation*

Following the principles of *Gourley*, the benefits valued must be net of tax. For future losses, Lord Goddard in the same case advised the jury:

> No one can foresee whether tax will go up or down and I advise you not to speculate on the subject but to deal with it as matters are at present.

Hence rates of tax, allowances and reliefs should be taken as at the date of trial, although if there is clear evidence that there would have been a change in the plaintiff's circumstances, allowance should be made for this. For example, the plaintiff may be repaying a loan on which tax relief is granted on the interest payments, and account should be taken of this in calculating the plaintiff's net loss. However, it would be unreasonable to assume that the current amount of interest would continue to be payable for the remainder of the plaintiff's life.

If the plaintiff has other sources of income, the earnings lost should be treated as the top slice of his income for the purposes of the calculation of tax.

The incidence of tax must also be taken into account in the choice of the rate of discount to be applied to future losses. Although in personal injury and fatal accident cases, any lump sum award is free of tax, the investment income arising from the award will be taxable. However, it may not be correct to reduce the discount rate by the present rate of income tax payable, as an increasing part of the plaintiff's losses in each future year will be met by drawing on the capital, thus reducing the amount of interest earned and the effective rate of tax payable.

It should be noted that the Government Actuary's guidelines for the valuation of pension loss on unfair dismissal do not indicate that the employee's pension should be reduced by tax before being valued. We understand that the actuarial factors are based on a gross rate of interest so that it is implicitly assumed that the effect of tax on the investment income from the award will offset the tax which would have been payable on the lost pension.

When damages are awarded for wrongful dismissal in breach of contract, or if a settlement is made, income tax is payable on any excess of the lump sum over £25,000. Relief is given in respect of one-half of the tax payable on the next £25,000 and one-quarter on the next £25,000. That part of the award in excess of £75,000 is taxed in full. The award is treated as income received in the year of termination of the contract.

It is therefore necessary to make due allowance for tax payable on the lump sum in determining the damages to be awarded in cases of wrongful dismissal. As mentioned in Section 2.3.2, there have been differences of practice in this regard, and we demonstrate the alternative methods in Appendix 3.

3.4.5 *Mortality*

To determine the present value of future income, allowance must be made for the probability that the plaintiff will die (or would have died) before the date on which the income would have been received. Similar calculations are carried out by actuaries in setting premium rates for life assurance and annuity policies and in assessing the required level of contribution to funded pension schemes. But, as has already been mentioned, it is not generally accepted by the courts that actuarial techniques can be of assistance in the assessment of damages.

In section 3.1, we illustrated the concern of the courts that the use of actuarial evidence implies that the plaintiff is an 'average man'. We would make three comments on this point.

First, that actuarial methods can be used in conjunction with any mortality assumptions and, indeed, it is difficult to see how scientific adjustment for 'non-average' cases can be made in any other way.

Second, that it does not seem unreasonable that a plaintiff should be treated as an 'average man', unless it can be shown that his future mortality is likely to be different from the norm.

Third, and most important, that the current approach of using a multiplier which was considered appropriate in similar cases is based on precisely this same premise which the courts find unacceptable when adopted by actuaries.

We would argue, therefore, that it *is* appropriate for the actuary to assume that the plaintiff's mortality, or that of dependants in a fatal case, is 'average' unless he is instructed otherwise.

The actuary still needs to decide what mortality basis represents 'average' experience. The most obvious starting point is a population mortality table such as English Life Table No. 13. However, the actuary should consider whether the occupation, area of residence, ethnic group or other characteristic of the plaintiff indicate that an adjustment should be made to the population mortality if there is sufficient data available to justify such an adjustment, and whether this would have a significant effect on the results of his calculations.

We would also mention two other points in this connexion. If the actuary is advised that the plaintiff is in 'good health', it might be thought appropriate to assume that his future mortality experience will be better than 'average' as the population mortality table includes those who are not in 'good health'. Further, it can be argued that allowance should be made for future improvements in mortality rates, especially in the case of a young plaintiff. However, any such adjustment might be difficult to justify in court.

The actuary may be instructed that the plaintiff will experience heavier than normal mortality in the future. Medical evidence to support this view will be presented at trial, unless the two sides can agree on this aspect prior to the hearing.

The medical expert should be asked to quantify the extent of this extra mortality. This might be expressed in one of three ways:

(*a*) by indicating the increase to be applied to the 'normal' mortality rates at each future age,
(*b*) by indicating that the plaintiff's mortality will be equivalent to that of a 'normal' man aged, say, ten years older,
(*c*) by indicating the reduction in the future expectation of life of the plaintiff *vis-à-vis* the 'normal' for a man of his age.

The first two of these methods are those normally adopted by life underwriters in assessing the extra premium to be charged for a substandard risk. In practice, if the actuary is advised that the plaintiff's expectation of life has been reduced to say, fifteen years, he might ascertain the age for which this is the 'normal' future expectation, and proceed as for method (*b*).

We emphasise here that the expectation of life is used merely as a yardstick. We will see in Section 3.5 that it does not directly enter the actuary's calculations of the value of future losses, apart from the consideration of the 'lost years'.

In a personal injury case, where the plaintiff has suffered injuries which reduce his future expectation of life, loss of earnings should be valued by reference to the mortality he would have experienced had it not been for the accident. A deduction must be made (following *Pickett*) for his own living expenses in the 'lost years', i.e. the period by which his expectation of life has been reduced. Future costs of care and treatment should be based on the mortality which the plaintiff is expected to experience as a consequence of his accident. In such cases, therefore, it is necessary to consider the plaintiff's mortality both before and after the accident. We discuss methods of valuing the 'lost years' deduction in Section 3.5.2.

3.4.6 *Other Contingencies*

There are contingencies, other than mortality, which may affect the probability that an injured plaintiff would have received the earnings or pension for the loss of which he is being compensated. It is the practice of the courts to make a percentage reduction in damages to allow for these contingencies, or, alternatively, to select a multiplier which is thought to make some allowance for such factors.

A deduction of 10% is often applied, although higher percentages have been used in cases where the contingencies have incorrectly included the possibility of death prior to attaining the 'expectation of life'.

A detailed consideration of these contingencies would be an interesting exercise, but is outside the scope of this paper. We would suggest, however, that any such investigation should consider three basic questions:

1. What contingencies need to be taken into account?
2. What allowance should be made for each?
3. How should such allowances be incorporated into the calculations?

We would suggest that the most important factors to be taken into account are the probabilities of future redundancy and subsequent unemployment, temporary ill-health, permanent disability and early retirement. In cases where the plaintiff was self-employed, it may be appropriate to make some allowance for the possibility that his business would fail.

However, it should be borne in mind that in the event of redundancy or ill-health the employer has to provide a statutory benefit, and the payment of Social Security benefits would also reduce the plaintiff's prospective loss. In the case of early retirement or retirement on grounds of ill-health, credit should be given for any pension which would be received.

It would appear, therefore, that a 10% deduction is rather high. Professor Harry Street in "Principles of the Law of Damages" examined statistics from various sources, and formed the view that the deduction should be in the range of 2 to 6%. However, in *Mitchell v Mulholland (1972)*, Lord Justice Edmund-Davies rejected a 2% deduction as "both haphazard and too little", although he did not indicate his view as to a reasonable figure or, indeed, why another figure would be any less haphazard.

If the future probabilities of redundancy, ill-health etc. were known (or could be assessed with any confidence) it would be comparatively easy for an actuary to make direct allowance for these contingencies in the valuation of future losses. We consider this aspect in Section 3.5.1.

We conclude the discussion of other contingencies with five further points:

(i) It should not be assumed that damages should always be reduced for contingencies other than mortality. As Mr Justice Windeyer said in *Bresatz v Przibilla (1962)*: "Each case depends upon its own facts. In some it may seem that the chance of good fortune might have balanced or even outweighed the risk of bad".

(ii) It is not usual for any deduction to be made from pre-trial loss of earnings although logically some deduction should be made if, for example, the plaintiff had a history of illness.

(iii) Clearly no deduction should be applied to the present value of the cost of future care, as the only contingency affecting this is mortality.

(iv) If an injured plaintiff has obtained alternative employment, the nature of this employment and the plaintiff's current state of health should be considered in assessing the extent of mitigation of his loss. In such cases, a higher deduction for contingencies might be applied to the earnings which he will receive from this alternative employment.

(v) In personal injury cases in which the plaintiff is an unmarried woman, the award for loss of future earnings should take into account the possibility that she might have married and given up her job. Lord Denning, in *Harris v Harris (1973)*, pointed out that if damages for loss of earnings were not reduced to take account of this possibility, there would be overlap with damages awarded for loss of marriage prospects under the head of pain and suffering. In a recent case *(Hughes v McKeown (1984))* Mr Justice Leonard held that the plaintiff's prospects of marriage should be disregarded when assessing damages under both heads. This approach had also been adopted by Mr Justice O'Connor in *Carrick v Camden London Borough Council (1979)*, who pointed out that if the plaintiff had married and been supported by her husband, she would have had a future economic gain which had been lost as a consequence of her accident.

In fatal cases, the value of loss of dependency to the widow should not take account of the possibility of her remarriage. This requirement was introduced by the Law Reform (Miscellaneous Provisions) Act 1971 and is now incorporated in the Fatal Accidents Act 1976. However, this possibility must be considered in the assessment of the loss of dependency suffered by any children, and in the case of a claim by a widower, the contingency of his re-marriage has to be taken into account. Similarly, the possibility of future marriage must be taken into account in the assessment of loss of support to parents consequent upon the death of an unmarried son or daughter.

3.5 *Calculation and Presentation of Results*

Once the information has been obtained, and the valuation basis determined, the actuarial calculation of the damages is relatively simple. It is the presentation of the results which is of utmost importance. We therefore discuss the form of the actuarial report in conjunction with the method of calculation of the results.

3.5.1 *The Actuarial Report*

The actuarial report will be used in negotiations for settlement and, if these are not successful, the report will form the basis of the expert evidence to be presented by the actuary in court.

We would suggest that the report should contain the following sections:

1. Introduction giving details of instructions received and items to be valued.
2. Full details of data provided (or assumptions made).
3. Full details of, and reasons for, the actuarial basis adopted.
4. Details of the calculations and summary of the results.

Sections 2 and 3 together should ideally give sufficient information for another actuary to reproduce the results.

A common problem is that because actuarial calculations are carried out using commutation functions there often appears to be a 'leap' from the details set out in Sections 2 and 3 to the results set out in Section 4. Given that the courts' reluctance to accept actuarial evidence may in part be due to their not understanding the calculations, we strongly recommend that the results should be presented in a table showing each future payment and its present value. In this respect we are reminded of William Morgan's repeated arithmetical demonstrations in the early years of actuarial science of the working out of a life assurance fund.

An example of such a table for the valuation of loss of earnings is shown in Appendix 4. Similar tables can be produced for loss of pension, or future costs of care. In a fatal case, the changing levels of dependency of the deceased's children can easily be incorporated in such a table. A further example is given where direct allowance has been made for the probability that the plaintiff would have taken early retirement. This demonstrates how direct allowance can be made for contingencies other than mortality.

Another advantage of presenting the results in this way is that it can be seen that the actuary has made allowance for the probability that the plaintiff would have died before attaining his expectation of life, or that he would have survived beyond it.

The actuary may present a further table which shows how the lump sum calculated would be depleted over future years. We would not recommend that such a table be produced unless specifically requested because it is necessary to base the table on the expectation of life. This leads to two problems. Firstly, as every actuarial student is taught to prove, the value of an annuity certain for a term equal to the life expectancy is greater than the value of the life annuity at the same age and thus the capital sum calculated by the latter method will 'run out' before the expectation of life is reached. Secondly, any table based on expectation of life is likely to lead to statements such as that made by Lord Justice Waller in the *Auty* case that in the particular case the plaintiff might not live to exactly his expectation.

It can be laborious to produce these tables manually, especially in the case of a young plaintiff, but there should be no difficulty in writing a computer program for this purpose.

3.5.2 *The 'Lost Years' Deduction*

If it is found that a plaintiff's injuries have reduced his future expectation of life, it is necessary to make a deduction in respect of the plaintiff's own living expenses in the 'lost years' from the loss of earnings valued by reference to his pre-accident mortality.

We have emphasized that the expectation of life does not otherwise enter into the assessment of loss. It is unfortunate that it is central to the concept of 'lost years', and in our opinion it would be preferable to allow for the saving in living expenses in a manner consistent with that adopted for the main actuarial calculations. This could be accomplished by valuing the plaintiff's 'surplus' earnings (i.e. net earnings less his own living expenses) by reference to his pre-accident mortality, and valuing the living expenses by reference to his post-accident mortality. The cost of future care and treatment as a consequence of his accident would also be valued on this latter basis. If this approach were to be adopted, it would not be necessary to quantify the 'lost years', nor to refer to the plaintiff's expectation of life.

If the actuary wishes to value the 'lost years' claim explicitly, one approach would be to value a deferred annuity certain, where the term of payment of the annuity is the number of 'lost years' and the period of deferment is the plaintiff's reduced expectation of life. This gives credence to the fallacy that the plaintiff would have lived to his pre-accident expectation of life and then died, but as a result of his accident, he will live to his reduced expectation, and then die.

A major problem with the concept of 'lost years' is that the years which are 'lost' must logically be considered to be those years after the attainment of the plaintiff's reduced expectation and before the attainment of his normal expectation. Thus, in practice, the 'lost years' often arise after the plaintiff would have retired and consequently the deduction for his living expenses must be related to his income in retirement. No account is taken of the increased probability of the plaintiff's death prior to his retirement age, when his living expenses would have been considerable higher.

As an extreme example consider a plaintiff who would have lived to age 70 and has his expectation of life reduced by five years. A deduction should therefore be made from the damages calculated to allow for his living expenses from age 65 to 70. However, if the plaintiff's claim consists of loss of earnings to age 65, with no loss of pension after that age, there is nothing from which to deduct his living expenses! Hence, the court would make no deduction in such a case. It would hardly be reasonable to value a 'negative loss' for that period, i.e. to imply that the plaintiff has gained from having his expectation of life reduced, because he will not have the expense of supporting himself after age 65!

This problem would not arise if the concept of 'lost years' were to be abandoned and if the approach suggested earlier were to be adopted instead.

It will be noted that the greater the amount by which the plaintiff's expectation of life has been reduced, the greater is the deduction from damages in respect of his own living expenses. In the extreme case, where the plaintiff is killed, no 'lost years' claim can be made (where the cause of action accrued after 1 January 1983). Thus, not only is it generally 'cheaper to kill than to maim' but damages awarded to an injured plaintiff will be less if his expectation of life has been reduced (all other things being equal).

3.6 *Actuarial Evidence in Court*

It is apparent from previous sections of this paper that the courts do not currently look favourably upon actuarial evidence. It is therefore vital that when such evidence is presented in court it should be done so in as clear a manner as possible.

Expert witnesses in all fields acknowledge that there is an art to giving evidence in court. Anyone entering the witness box for the first time without the benefit of instruction from others who have faced the ordeal does so at his own peril! (The authors must admit, however, that neither of them has as yet given evidence in court. It will be appreciated that most cases are settled out of court and therefore actuarial evidence rarely proceeds past the report stage.)

John Prevett in his paper to the Institute in 1968 suggested that at least two conferences should take place with instructing Counsel, one before and one after the preparation of the actuary's draft report. Whilst, in practice, this ideal is rarely attained, it is vital that Counsel should fully understand the actuarial evidence to be presented since he will take the actuary through his evidence. The way in which Counsel poses questions to the actuary is as much responsible for the clarity and understanding of the evidence as the replies which the actuary gives. Again, there is much to be learned from experts in other areas.

Giving evidence in court must be one of the supreme tests of marketing the actuarial profession. If the courts are to accept actuarial evidence then the mystique which attaches to our calculations must be dispelled and replaced by a clear understanding of how we arrive at our results.

4. CONCLUSION

In this paper we have set out the present day practice relating to damages as we understand it and discussed the role which actuaries play in determining the quantum of damages.

We believe that, ideally, the actuary should have complete freedom to choose his own basis and to form his own professional opinion as to the value of future losses. His evidence should be treated by the courts on its merits and not be ruled as inadmissible because, for example, he has made allowance for future inflation.

Judges regularly accept the evidence of doctors, surveyors, architects, engineers and accountants and find their evidence of great assistance in helping them to decide various issues. Even in the Family Division of the courts—where there can be no precise scientific answer to the many human problems upon which the judges have to adjudicate—the evidence of experts is welcomed and considered helpful. We look forward to the day when our skills are recognized by the courts in the same way as those of other professions and our status is thereby enhanced to the level enjoyed by our colleagues in other countries where actuarial evidence is the *primary* basis of assessment of the quantum of damages.

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The views expressed in the paper and any remaining errors are, of course, solely those of the authors.

APPENDIX 1

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APPENDIX 2

SPECIMEN CHECKLISTS OF INFORMATION AND INSTRUCTIONS REQUIRED BY THE ACTUARY

Personal Injury or Fatal Accident Claims

(i) *Instructions*

1. Date of Calculation (i.e. expected date of trial)
2. Benefits to be valued
   e.g. post-trial loss of earnings
   loss of pension benefits
   future cost of care and attendance
   future cost of special equipment and treatment
   loss of income in 'lost years' (see 2.1.2)
   pre-trial loss
3. Benefits to be taken into account in mitigation (see 2.1.7)
   e.g. earnings and pension benefits from new employment
   pension from former employment
   State benefits
4. Valuation Basis (see 3.4.2)
   e.g. 'Lord Diplock' approach
   'index-linked' approach
5. For a fatal case, is claim being made under Fatal Accidents Act and/or Law Reform Act? (see 2.1.1)
6. Copy of any opinion from Counsel
7. Copy of all relevant correspondence

(ii) *Personal Information*

1. Full name of plaintiff
2. Sex
3. Date of birth
4. Date of birth of spouse and other dependants
5. Date of accident/death
6. State of health of plaintiff (both pre- and post-accident), spouse and dependants (see 3.4.5) i.e. normal health or medical opinion to quantify extra mortality

(iii) *Income Information*

1. Details of earnings (and any other benefits of employment) at date of accident and equivalent as at date of trial
2. Details of any guaranteed salary increases or fixed incremental salary scales (e.g. civil service)
3. Details of earnings in mitigation from current employment
4. Details of relevant State benefits being received at date of trial (see 2.1.7)

5. Details of other items of claim
   e.g. annual cost of future care and attendance
   cost of special equipment and treatment required in future years
6. Details of the deduction for the plaintiff's living expenses for the 'lost years' calculation (see 2.1.2)
7. Details of level of dependency for each dependant in Fatal Accidents Act claims and value of services provided by deceased (e.g. gardening) (see 2.1.2)
8. Details of earnings lost, expenses incurred and State benefits received prior to trial if pre-trial losses are to be valued

(iv) *Pension Information*
1. Copy of pension scheme trust deed and rules and/or scheme booklet
2. Date of commencement of pensionable service
3. Details of pensionable salary
4. As an alternative to 1, 2 and 3, independent evidence as to the benefits to which the plaintiff would have been entitled and authority to contact the source of this information if clarification is needed
5. Full details of pension benefits awarded as a result of accident/death
6. Details of pension benefits in mitigation from current employment

(v) *Tax Position of Plaintiff*
1. Allowances
2. Other sources of income
3. Recent tax returns, if available
4. National Insurance contribution rate

Wrongful or Unfair Dismissal Claim

(i) *Instructions*
1. Date of calculation (i.e. expected date of trial)
2. Benefits to be valued
   e.g. future loss of earnings
   loss of pension benefits
   loss of other benefits (e.g. private health insurance, company car, rent or accommodation etc.)
   pre-trial loss of earnings
3. Benefits to be taken into account in mitigation
   e.g. earnings
   paid-up pension
4. Valuation basis (see 3.2.2)
   e.g. allow for inflation explicitly
   'Lord Diplock' approach
   'Index-linked' approach
   Government Actuary's Guidelines

5. Allowance to be made for any tax on the award (see 2.3.2)
6. Copy of contract of employment
7. Copy of any opinion from Counsel
8. Copy of all relevant correspondence

(ii) *Personal Information*

1. Full name of plaintiff
2. Sex
3. Date of birth
4. Date of birth of spouse and other dependants
5. State of health of plaintiff, spouse and dependants (see 3.4.5) i.e. normal health or medical opinion to quantify extra mortality
6. Date of commencement of service
7. Date of termination of service

(iii) *Income Information*

1. Details of earnings at date of leaving service
2. Details of any contractually guaranteed salary increases or fixed incremental salary scales
3. Details of any earnings from new employment in mitigation
4. Details of other items of claim (e.g. value of private health insurance, value of car benefit, etc.)

(iv) *Pension Information*

1. Copy of pension scheme trust deed and rules and/or scheme booklet
2. Date of commencement of pensionable service
3. Details of pensionable salary
4. As an alternative to 1, 2 and 3, independent evidence as to the benefits to which the plaintiff would have been entitled and authority to contact the source of this information if clarification is needed.
5. Full details of pension benefits awarded to plaintiff on leaving service including any options (e.g. transfer value or early retirement)
6. Details of pension increases granted by the scheme, i.e. guaranteed or recent history of discretionary increases

(v) *Tax Position of Plaintiff*

1. Allowances
2. Other sources of income
3. Taxable value of any benefits in kind (e.g. company car)
4. Recent tax returns, if available
5. National Insurance contribution rate
6. If tax adjustment is to be calculated, details of the amounts of any elements of the award not calculated by the actuary

APPENDIX 3

DEMONSTRATION OF ALTERNATIVE METHODS OF ALLOWING FOR TAXATION OF LUMP SUM AWARDS IN CASES OF WRONGFUL DISMISSAL

Consider the case of a plaintiff dismissed in the tax year 1984/85. His gross income in the tax year, before receiving any award, is £10,000. His only tax allowance is the married man's allowance of £3,155, leaving a taxable income of £6,845.

His claim is for loss of earnings of £15,000 per annum gross for the remaining ten years of his contract up to age 65. His loss is equivalent to £11,447 per annum after tax (based on 1984/85 tax rates and allowances).

If the *Gourley* principle is to be applied (notwithstanding that part of the award *will* be subject to tax) it would be appropriate to value his net earnings lost at a net rate of interest. The alternative is to take no account of tax on the earnings or on the investment income from the award and to value gross earnings lost at a gross rate of interest. In both cases, the result must be adjusted to allow for the fact that part of the award is subject to tax.

Let us assume that the actuary decides to adopt a gross rate of interest of 3% per annum in his calculation, and to make no explicit allowance for future salary increases. An equivalent net rate of interest might be $2\frac{1}{2}\%$ (for the reason given in Section 3.4.4). On the basis of population mortality—English Life Table No. 13—the annuity values or multipliers would correspond to those given in Table 3 of the 'Actuarial Tables for use in Personal Injury and Fatal Accident Cases' for loss to age 65.

Hence, the loss on a 'gross/gross' approach is given by

$$£15,000 \times 8{\cdot}0 = £120,000$$

and this must be reduced to take account of the tax exempt element of the award.

On a 'net/net' approach, the loss is

$$£11,447 \times 8{\cdot}2 = £93,865$$

which must be grossed up to allow for tax.

The approach adopted in the case of *Bold v Brough, Nicholson and Hall Ltd. (1963)* was to make a deduction from the gross award to allow for the fact that the first £5,000 (as the tax exempt part then was) of the damages was not subject to tax. The deduction to be applied is described in the following extract from the article "Taxation, Damages and Compensation for Unfair Dismissal" by O. P. Wylie and J. E. McGlyne:

> The exempt £5,000 represents compensation for loss of several years' future earnings. As the compensation is being received now the actual loss of future earnings will have been discounted in computing the damages and it is therefore necessary to gross up the £5,000 by the discount factor to establish the actual lost earnings it represents. These lost earnings must then be divided by the number of years unexpired of the contract of employment to establish a single year's lost earnings. Tax is then computed on these annualized earnings treating them as earned income received in the year of

termination of the employment. Where the employee has other income the tax liability attributable to the notional earnings is to be computed as if the earnings formed the average part of the employee's total income. The tax due on the annualized earnings is then multiplied by the number of years unexpired of the contract of employment. This gives the notional tax due on the total lost earnings and this sum is then reduced by the discount factor to establish the tax due on the exempt £5,000 damages. This amount is then deducted from the gross award of damages.

Under current legislation, the first £25,000 of the award is exempt from tax, and relief is given of one-half of the tax payable on the next £25,000, and one-quarter of the tax on the following £25,000. For the purposes of our calculation, we have accordingly taken the tax-free element (corresponding to the £5,000 in *Bold*) to be

$$£25{,}000+\tfrac{1}{2}\times £25{,}000+\tfrac{1}{4}\times £25{,}000=£43{,}750$$

If we apply the steps set out in the above extract to our example, we get the following

(i) Gross up the exempt part by the discount factor:

$$£43{,}750\times\frac{10}{8\cdot 0}=£54{,}688$$

(ii) Divide by the number of years of loss:

$$£54{,}688\div 10=£5{,}469$$

(iii) Compute tax on this annual loss, assuming it forms the average part of the plaintiff's income in the year of termination:

Taxable income $£5{,}469+£6{,}845=£12{,}314$
Tax payable $=£12{,}314\times\cdot 3=£3{,}694$
Thus the tax relating to the £5,469 is

$$£3{,}694\times\left(\frac{5{,}469}{5{,}469+10{,}000}\right)=£1{,}306$$

(iv) Multiply this tax due by the number of years of loss

$$£1{,}306\times 10=£13{,}060$$

(v) Reduce this notional tax by the discount factor

$$£13{,}060\times\frac{8\cdot 0}{10}=£10{,}448$$

(vi) Deduct this from the gross damages

$$£120{,}000-£10{,}448=£109{,}552$$

Thus the amount awarded would be £109,552 in this example.

The alternative approach is that adopted in *Shove v Downs Surgical plc (1984)*. Here, the net loss must be increased to allow for the tax payable on the award. Let this tax be $£x$, so that the gross award would be $£(93{,}865+x)$, of which $£(68{,}865+x)$ would be subject to tax.

The plaintiff's taxable income prior to the award was £6,845. Hence there is a balance of £8,555 in the 30% tax band of £15,400. Hence the tax payable on the next £25,000 of the award is

$$\tfrac{1}{2} \times (£8,555 \times \cdot 30 + £2,800 \times \cdot 40 + £4,900 \times \cdot 45 + £7,500 \times \cdot 50 + £1,245 \times \cdot 55) = £5,163$$

and the tax on the following £25,000 is

$$\tfrac{3}{4} \times (£6,255 \times \cdot 55 + £18,745 \times \cdot 60) = £11,015$$

The remaining £$(18,865 + x)$ is taxed at 60% and there is no relief. Therefore the tax on this part of the award is

$$£(18,865 + x) \times \cdot 60 = £(11,319 + \cdot 6x)$$

We therefore have an equation in x

$$5,163 + 11,015 + 11,319 + \cdot 6x = x$$

giving $x = 68,742$
so that the gross award is

$$£93,865 + £68,742 = £162,607$$

This gives a considerably higher award than the *Bold* approach as account is taken of the higher tax rates.

APPENDIX 4

VALUATION OF LOSS OF FUTURE EARNINGS AND PRESENTATION OF RESULTS

Consider a male plaintiff aged 55 at date of trial, who is to be compensated for loss of net future earnings of £10,000 per annum to age 65.

Let us assume that the actuary decides to adopt a net discounting rate of interest of $2\frac{1}{2}\%$ per annum and mortality in accordance with English Life Table No. 13.

The appropriate multiplier from the "Actuarial Tables for use in Personal Injury and Fatal Accident Cases" is 8·2, giving a loss of £82,000.

Alternatively, the calculation may be set out as in Table 1. (The answers differ slightly due to the rounding of the multiplier.)

Table 1

Year	*Age of Plaintiff*	*(1) Net Loss* £	*(2) Discount Factor*	*(3) Probability of Survival of Plaintiff to Given Age*	*(1) × (2) × (3) Present Value of Loss* £
1	55	10,000	·98773	·99376	9,816
2	56	10,000	·96364	·98070	9,450
3	57	10,000	·94014	·96642	9,086
4	58	10,000	·91721	·95080	8,721
5	59	10,000	·89483	·93390	8,357
6	60	10,000	·87301	·91547	7,992
7	61	10,000	·85172	·89547	7,627
8	62	10,000	·83094	·87379	7,261
9	63	10,000	·81068	·85036	6,894
10	64	10,000	·79090	·82511	6,526
				Total Net Loss:	81,730

If the actuary is instructed that the probability that the plaintiff would have taken early retirement at 60 (if he had lived to that age) is ·1, and that the probability of retirement at each subsequent age is ·05, he can construct a further column for the table which can then be extended as shown in Table 2.

Thus the effect of this allowance for early retirement is to reduce the loss by approximately 8%. It should be noted that for younger plaintiffs the corresponding percentage reduction would be much smaller.

Table 2

Year	Age of Plaintiff	(1) Net Loss £	(2) Discount Factor	(3) Probability of Survival of Plaintiff to Given Age	(4) Probability that Plaintiff Will Not Have Retired	(1) × (2) × (3) × (4) Present Value of Loss £
1	55	10,000	·98773	·99376	1·0	9,816
2	56	10,000	·96364	·98070	1·0	9,450
3	57	10,000	·94014	·96642	1·0	9,086
4	58	10,000	·91721	·95080	1·0	8,721
5	59	10,000	·89483	·93390	1·0	8,357
6	60	10,000	·87301	·91547	·9	7,193
7	61	10,000	·85172	·89547	·855	6,521
8	62	10,000	·83094	·87379	·81225	5,897
9	63	10,000	·81068	·85036	·77164	5,319
10	64	10,000	·79090	·82511	·73306	4,784
					Total Net Loss:	75,144

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