Andrew Warner, Esqre

With the Author's
            Compliments.

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INDUSTRIAL

INVESTMENT AND EMIGRATION,

BEING A

TREATISE

ON

BENEFIT BUILDING SOCIETIES AND TONTINES,

AND ON

The General Principles of Associations

FOR

LAND INVESTMENT AND COLONIZATION,

WITH SOME

New Theorems in the Doctrine of Compound Interest.

BY

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Third Edition, Enlarged.

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PRELIMINARY REMARKS.

I. In the First Edition of this work, which was published in the year 1847, we undertook, mainly, to examine the characteristics of Benefit Building Societies, which were, then, all established on the *Terminating* System, and endeavoured, while pointing out and classifying errors of practice and theory into which the majority had fallen, to *lay down principles which might serve as a guide to the correct formation of future societies, and as the basis of some consistency in their subsequent operations. We desired also to urge, upon the Managers and Directors of many that were already in existence, the necessity of turning their attention to the errors described, and of taking such measures as might be calculated to remedy the evil, by introducing judicious alterations into their rules and rates of subscription, or by making such other improvements as would be likely to avert from the societies confided to their care the disastrous termination, which they could not otherwise avoid. We recommended, also, the new system, we had devised, of associations on the principle of *Permanent* existence.

It is gratifying to observe, that this effort to raise the standing of a class of institutions so eminently philanthropic has not been wholly unsuccessful. A great many new associations have been formed since 1847, upon sound and equitable principles; while the managers of others, of some years' standing, have manifested considerable readiness to attend to the suggestions offered to them, and have sought

* Preface to first edition.

to improve the defective portions of the constitution of their respective societies.

They have seen that it is better to meet the difficulty, whilst the effects of erroneous systems are still young, and before the mischief produced has become insurmountable; and it is no slight justification for praise, that, on being called together and informed by their Managers of the impracticability of their fulfilling, as the associations were then constituted, the original letter of promise, the members, in most cases, have consented to steps being taken for the introduction of sound principles, although their previous expectations were thus disappointed.

A great number of Terminating Societies have, consequently, been converted into Permanent associations; and rules and tables have been adopted, by which all previously existing and subsequent members are placed on the same footing as if the new clauses had been in force from the beginning. The legal impediments, which borrowers might have thrown in the way of improvement, have been obviated by due care having been taken that the conversion should proceed in so impartial a manner, that neither their just interests should be disregarded, nor their cause favoured to the disadvantage of the general body.

This was all the more necessary, as several societies, that have been converted without proper precaution in this respect, have become involved in litigation, with its consequent endless expenses, which might have been easily avoided if the requisite conditions had been attended to at the time of the conversion.

II. Thus far, therefore, the object aimed at by us has been attained; and it would not have been necessary to make much addition to the previous editions of this work, were it not that a strong tendency in the public mind, towards the formation of other kinds of Industrial Associations, has become more and more manifest; and Benefit Building Societies, under the

name of *Freehold Land Societies, have been applied to the attainment of new objects, such as the extension of the Elective Franchise, &c., which are totally different from that for which they were originally designed, and were not contemplated in the Act of Parliament relating to their government.

III. As, however, it is desirable that the new features thus introduced, as well as those which characterize other similar societies, should be guarded from the defects which have so disfigured their predecessors, we have traced, in additional pages, the general outlines of some of the chief varieties of the new institutions, under the form of supplementary chapters to the more detailed account contained in the first part of this Division of the Treatise. We have, also, endeavoured to explain the advantages of *Tontine associations*, and the excellent application that might be made of Life Assurance, with he systems of Fidelity and Loan Guarantee. Chapters have, further, been added in explanation of the principles upon which Benefit Societies might be formed, so as to assist in the high purposes of systematic Emigration and Colonization.

IV. To bring the Art of Colonization within the comprehension of the industrious classes, we believe it is necessary to interest their minds and pecuniary ambition in the subject. The control and advocacy of the movement must be committed to their diligence and sympathy. It is not by the reserved and distant-mannered representatives of a great company, that their co-operation in systematic colonization will ever be obtained, or the Art be developed to perfection ; but by the Super-association—if we may be allowed the term—of a series of industrial associations united for the furtherance of the same popular object.

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* [See Division III., or, *Treatise on the Enfranchisement and Improvement of Copyhold, Church, and Life Leasehold Property*, for further developments of the principle of Land Transfer and Registration, and for a set of *Rules* suited for a *Freehold Land Society*.]

V. The plan that, in the last chapter of Part II., will be found described for the carrying out our idea of Benefit Emigration and Colonization Societies, may be, perhaps, in some points, susceptible of advantageous modification or improvement; but in the absence, as yet, of those facilities that may be properly accorded by the legislature, either to the central company recommended by us, or to the Commission, which is the agent of the Government, we can desire only that our system should be accepted by our readers in the light of a first attempt to adapt, for practical operation, the elements of a mighty scheme.

On the locality to be selected, as the basis of any colony, we have expressed no opinion, since that has not formed part of the object of this work. Much, nevertheless, might be said upon the question, if into consideration be taken the relative distances of the colonists' future habitations from this kingdom, and the greater or less diminution which must arise in the available means of their support left unexpended at their arrival. The difference in expense of maintenance during passage to a colonist, or to the country that sends him out, varies materially according to whether the rendezvous of emigration be the British provinces of North America, which, at but 2,500 miles' distance, can be reached in ordinary sailing vessels in some 30 days, or the Australian colonies, that require, by the speediest method of transit upwards of 60 days to arrive at the end of a journey of 14,000 miles. On a large body of emigrants the effect of such a difference in expense would be of essential importance, and, to balance it the land to be purchased should be at a much lower price, which is the reverse of the actual fact at present.—(*See note to page* 230.)

The broad principles of the Art would, in any case, be the same : to draw closer the ties between the colonies and the mother country ; to reproduce England on the other side of the great oceans ; to create for her superabundant population

institutions, feelings, and a state of beneficial civilization, as near akin to that of this country as possible; and to induce the parent to promote her own interest by watching after the future welfare and by strengthening the hands of her children; so that, through discontent and indignation at neglect, they may never be led even to consider the possible advantages of Separation.

VI. Before entering into the specialities of the Treatise, we would detain the reader's attention, for a few moments, on the legal constitution of associations, contemplated for the purpose of fostering a provident spirit among the industrious classes, whether it be in the investment of their savings, or in the effecting of various objects rendered desirable by the necessities of their situation. According to the present laws, unless by a special Act of Parliament or Royal Charter, a legal existence can only be given to them by registration under the Friendly or Benefit Building Societies Acts, or under the recent Act of 1856, (19 & 20 Vict. cap. 27) for the regulation of Joint Stock Companies, whereby that of 1844 (7 & 8 Vict. cap. 110) is repealed. The new Act was passed to meet the instances which used to occur, where admirable institutions, from not being exactly within the definition of the former privileged Acts, had either to be abandoned or enrolled under that of a Joint Stock Company, and thus entail responsibility, without limit, upon the promoters and others, who furnished, under the name of shareholders, the working capital. By the new Act, Companies may be formed either with or without limited liability to the shareholders, and very little expense is entailed in the registration. [See Division VI. (of the work of which this is the 2nd Division) on Industrial Partnership Societies under the new Act.] It is to be hoped that the facilities granted by the improved law will afford a great impetus to the institution of superior trading companies, under the management, and with the aid of that class of prudent people, not mere speculators, who

have hitherto been deterred from entering into public enter-
prises, through the danger, in case of failure, of the total ruin
of themselves and of those members who may happen to be
possessed of property.   The industrious classes used formerly
to see plans set on foot, with which they would readily asso-
ciate, were it not that, by so doing, they created a Joint
Stock Company with its indefinite responsibility.   Through
this, too frequently, the best combinations were left in the
hands of reckless speculators, whose unlimited liability was
of no value.

Among the motives for the recent change in the law, were
the opinions expressed by the Parliamentary Committee, who
referred to the rapid increase in population and in wealth
of the middle and industrious classes within the last half
century, and who contended that the great change in the social
position of multitudes, from the growth of large towns and
crowded districts, renders it more than ever necessary that
corresponding alterations in the law should take place, both
to improve their condition and contentment, and to give
additional facilities to investments of the capital which their
industry and enterprise is constantly augmenting ; and "that
if such measures were carried into effect, a stimulus would be
given to the industry of the country, likely to cause addi-
tional employment and contentment, without injury to any
class, and with increased security to the welfare of all."

VII. We should mention, perhaps, that an Act (15 & 16
Vict. cap. 31, called the "Industrial and Provident Societies'
Act") was passed in 1852, ostensibly with the object of facili-
tating Industrial Trade Societies, but it has become a dead
letter from its birth, through the absurd restrictions it contains
as to :—

    1st. The amount of interest a Member may have in the
        Society.

    2nd. The mode in which the profits are to be applied, and

    3rd. The condition that his liability should be *un*limited.

A variety of errors and oversights also disfigure the Act, which it has been attempted partially to remove by subsequent clumsy enactments in 1854 and 1856.

The new Joint Stock Company's Act of 1856 is, however, infinitely preferable to all the above industrial Acts.

VIII. Yet all the contemplated improvements in industrial associations will be rendered nugatory, unless some provision is introduced to secure thorough respectability and good faith in their management. The recent defalcations in Savings' Banks, to such an extent as to require grants of money from Parliament, for the relief of the subscribers, from utter loss of their savings, and the reckless promises of so many of the Joint Stock Companies, Friendly Societies, and Loan Companies, made to induce business, cannot fail to produce conviction of the urgency of some public system of Auditing accounts, whereby the interest of the public at large may be protected. Even the few investigations hitherto made by Public auditors, deputed for that purpose to various institutions, have evinced the efficiency of some such plan of inspection. It stands to reason, that errors in the principles by which the form of the accounts is to be guided, or unjustifiable measures in the management of the concern, are only likely to be obviated by the check supplied through an independent and impartial audit, by which not only the Account books, but the Minute books of the Directors and the Letter book of the Secretary are examined.

IX. The power of Association, which, in the present day, is becoming so well understood, is applicable, of course, to numerous other purposes besides those discussed in this Division of the Treatise ; and we have endeavoured, in the other Divisions, to explain the principles upon which other associations should be established or conducted.

The arguments, adduced in support of our views respecting the institutions specially examined in this part, are, however, applicable to any other, in which it is desired to settle upon

a sure basis the relative position of the members. The truth of the following remarks of the eminent philosopher, Rossi, is now recognized.

" L'association est un instrument, une arme de la plus haute puissance." . . . " Le progrés social ne peut consister à dissoudre toute association, mais à substituer aux associations forcées, oppressives, des temps passés, des associations volontaires et equitables. ' . . . " Tout peuple, chez lequel peut se réaliser cette haute combinaison de la puissance individuelle avec le principe d'association, est entré definitivement dans la carriére de la *Civilisation Progressive*." *

But, in our admiration of the principle in question, through which much benefit might be derived by the working classes, from their co-operation in trades or manufactures, and the maximum of advantage might be secured from the reproductive use of their *faculties*, just as in the material investment of their *monetary property*, we would not desire that, in carrying out the association of individuals, the subdivision of labour, and consequent speciality of employment, should be carried to such an extent as to narrow the intellectual faculties of any man to a single operation. With Adam Smith, we feel " that the understandings of the greater part of men are necessarily formed by their ordinary employment; that dexterity at a particular trade seems too often to be acquired at the expense of intellectual and social virtues; that the uniformity of stationary life tends to render them incapable of exerting their strength with vigour and perseverance in any other employments than that to which they have been used."

X. We commend to the attention of our readers one application of which the Joint Stock Companies Act of 1856 is susceptible, namely:

The formation of " Credit Foncier" or Land Credit Asso-

* *Cours d'Economie Politique.—Rossi. Tome 2.*

ciations on the principles that have been found so beneficial in Prussia, Poland, Bavaria, Hanover, and many of the smaller German States; in Switzerland and Belgium, and which more recently (in 1852) were introduced into France by the Emperor, then president of the Republic.

Their object is: firstly, to mobilize the soil, so as to give it a transferable species of Credit which can be used and transferred like a bill of exchange; and secondly, to facilitate the liquidation of Mortgages on land by gradual instalments. The reader, who is interested in the subject, should peruse the Memoire (1848) of M. Wolowski on the organization of the Credit Foncier; and the Manuals of M. Le Hir (1852) and M. Emile Berés (1853), which contain much valuable information on the subject of Land Credit Banks. The system of the Credit Foncier of France, which we personally examined in 1853, does not seem yet, however, to have met with the success it deserves, through the opposition of the provincial notaries, whose profits in conducting advances on land it would have tended to diminish. The Report of M. Josseau to M. Dumas, Minister of Agriculture (1851), should be consulted; as also M. Royer's work on the Institutions for Land Credit in Germany, and the recent admirable suggestions of Mr. Vincent Scully, Q.C., M.P., for a new Land System.

Mr. Scully remarks that, "It is a most idle illusion to imagine that a sound measure to facilitate Transfer of Land can ever tend to its undue subdivision, to give an improper impulse to democracy, or to affect injuriously the aristocratic element of these kingdoms. Such a measure would produce the very opposite results. Should the occasion arise, it will be easy to demonstrate that the free Sale and Purchase of Land can lead to no over-population of a country, or *morcellement* of its farms. It would have a highly preservative tendency, and would stabilitate a territorial proprietary, whilst admitting all industrious classes into either a present or a prospective participation in the ownership of Land. In the words of the

Chief Secretary for Ireland—'Its operation would be to in-
' crease the value of land to the Seller, and to give security
' to the Purchaser. It would also have the effect of enabling
' persons to buy small portions of land, and, by that means,
' of steadying the minds of the public and encouraging them to
' make investments at home.' "

It has been further argued by Mr. Scully that a system of
Land Debentures should be created, of which there are *already
several instances in force in England and Ireland—one of the
most remarkable being that conferred by the Legislature on the
Lands Improvement Company, through a special Act, the
16 & 17 *Vict. cap.* 154, enabling it to charge land with trans-
ferable Debentures, in order that the owners may make
improvements tending to develope the resources of their lands.
It would be impossible to overrate the benefit, that would arise
to small capitalists from the existence of a general system of
†Land Debentures, to be registered in such a manner as would
admit of legal rights being secured without tedious or expensive
preliminaries.

* [For Example :—In ENGLAND ; Land Drainage Company's Act, 12,
13 Vict. c. xci. ; Copyhold Enfranchisement Act, 15, 16 Vict. c. 51 ; Land
Improvement Company's Act, 16, 17 Vict. c. cliv.—IRELAND ; Land
Drainage Act, 5, 6 Vict. c. 89. s. 100 ; Farmer's Estate Society's Act, 11,
12 Vict. c. cliii.; 14, 15 Vict. c. cxliii.; Sir J. Romilly's Securities for
Advances Bill of 1850.—CHANNEL ISLANDS ; See Duncan's Guernsey, p.
286 ; Berry's Guernsey, p. 177 ; Plee's Jersey, p. 251 ; Le Cras's Laws of
Jersey, p. 324 ; V. Scully on the Channel Islands, p. 64.—EUROPE ; See
" Land Credit Companies of Prussia," by W. Pollard Urquhart, M.P.
(1853) ; Jacob's Tour of Poland (1826) ; and as to Belgium, Hamburgh,
Frankfort, and parts of Germany, see Evidence of Mr. James Stewart
and Mr. John Stuart Mill, before the Commons Savings' Committee
of 1850.]

† [AGRICULTURAL STATISTICS (ENGLAND).—A blue-book, lately pub-
lished, contains the reports of the Poor Law Inspectors on agricultural
statistics in England in 1854, presented to Parliament. From a general
summary prefixed to the local reports, it appears that the gross estimated

XI. The Appendix to this Division will be found to contain various interesting investigations into the operations of societies dealing with compound interest and life contingencies, and more particularly suggestions for the extension of Savings Banks, &c., by the* deposit system, which we have devised, of contributions based upon *two simultaneous* rates of interest, one for Accumulation, and the other for Withdrawals.

XII. In conclusion, we would impress upon our readers, that the establishment of such associations and companies, as are

totals in the counties of England and Wales were as follows—*viz.*, number of statute acres, 37,324,915, of which the following numbers were under tillage for various grains—*viz.*, 3,807,846 acres of wheat, 2,667,776 acres of barley, 1,302,782 of oats, 73,731 of rye, 698,188 of beans and peas, 218,551 of vetches, 2,267,200 of turnips, 177,263 of mangold, 12,638 of carrots, 192,287 of potatoes, 10,156 of flax, 18,976 of hops, 1,079 of osiers, 97,334 of other crops, and 895,969 bare fallow land, making a grand total, under the agricultural division, of 12,441,776 acres. The grand total number of acres under grass, amounted to 15,212,203, including 8,174,946 acres of permanent pasture land, and 2,224,862 acres of sheep walks and downs. The number of acres in houses, gardens, roads, &c., was 976,197 ; the number of acres in waste attached to farms, 786,658 ; the number of acres in wood and plantations, 1,697,362 ; the number of acres in commons belonging to parishes, 1,937,164 : the number of acres in holdings of less than two acres, 459,447 ; and the number of acres not accounted for, 3,814,108. The stock of all the counties in England and Wales in 1854 included 1,050,931 horses, 258,079 colts, 1,376,730 milch cows, 707,192 calves, 1,339,279 other cattle, including working oxen, 244,106 tups, 7,299,915 ewes, 6,987,982 lambs, 4,159,085 other sheep, and 2,363,724 swine. It should be explained that returns have been received from eleven counties only, those for the remaining counties being simply estimated. In England, 61,496 acres, 3 roods, and 23 perches are occupied by railways ; while in Wales, 3,550 acres and 23 perches are occupied by railways.]

* [See Division I; for a set of Deposit Tables, calculated by the formulæ above referred to, for the use of Savings Banks and Industrial Societies.]

considered in this Treatise, can only lead to satisfactory
results, and avoid reacting, by failure, as a check upon the
continuous energy and forethought of the industrious classes,
through the managers constantly bearing in mind, that,
even when the broad principles of a system are definitely
settled, the details are far from being unimportant; that
nothing is more easy than to ruin the most carefully con-
structed plan by committing apparently trifling errors in its
execution; that the inconsistencies and objections to many of
the existing associations, which we have examined, are easy
to obviate, as their prevention lies entirely within the province
of the parties who are charged with the management of the
society's operations; and that our object is not only to expose
errors, but to direct attention to the principles of the plans
themselves, as containing materials for improvement, which
may be made beneficial to the community at large. With
the lamented economist, M. Frederic Bastiat, we would say
that, " *Aux douleurs de la concurrence l'humanité apprend,
chaque jour, á opposer deux puissants remèdes : la Prevoy-
ance, fruit de l'experience et des lumieres, et l'Association, qui
est la Prevoyance Organisée.

* *Harmonies Economiques.*

A TREATISE ON BENEFIT BUILDING SOCIETIES,

AND ON THE

GENERAL PRINCIPLES OF ASSOCIATIONS

FOR

LAND INVESTMENT AND EMIGRATION.

PART I.

ON BENEFIT BUILDING SOCIETIES.

' *The subject of this work has presented difficulties of a complicated character, from the various phases under which the peculiar defects of individual societies appear. The task has, however, been lightened by the reflection, that, although it cannot be expected that this effort, to place them upon a more rational and secure footing, will meet with the success of wholly obviating errors for the future, yet a most important end will at once be obtained, if the attention of the Patrons, Trustees, Directors and other officers of many of these institutions, be awakened to the sense of the grave moral responsibility incurred by them, in allowing their names to be connected with schemes, which, while professing to benefit, do but cause injury to those, for whose good they were designed,—to individuals not of equal information and position with themselves, but from a class remarkable for the simple faith with which they believe in any statement, that is sanctioned by the countenance of their superiors.*'—
[Extract from preface to first edition.]

CHAPTER I.

INTRODUCTION.

ART. 1.—AMONG the remarkable features of the present age, Benefit Building Societies occupy a very leading position. They have increased in such numbers during the last few years, not only in the metropolis, but in every part of the kingdom, that it has become a matter interesting to all to understand, correctly, their object and the true principles on which they ought to be founded. This information is the more desirable, as large sums of money are already subscribed

to these associations, and they seem likely in a few years to
engage in their operations a considerable portion of the in-
vesting capital of this country.   But, although they have
received extensive support from the industrious classes, it
is painful to find, that very few of the existing societies are
guided by principles, which can, either in theory or practice,
justify the hope of their terminating with the advantageous re-
sults held out as an inducement to parties to become members.

That the principles of Building Societies should be erro-
neous, and yet that their popularity should be so widely
extended, may be ascribed to two causes.   As yet, but few
persons of sound mathematical knowledge or experience in
calculations have turned their attention to the subject, and
the societies hitherto formed have been deprived of that basis
of science and just reasoning, which alone can ensure the
prosperity of this or any similar kind of speculation.   On the
other hand, the members of these associations have, in general,
been led to expect from them an unreasonable degree of
benefit—a false impression, which has been shared even by
persons of the more educated orders.

2.—A Benefit Building Society, when properly constituted,
is a species of joint stock association, the members of which
subscribe periodically, and in proportion to the number of
shares they hold, different sums into one common fund,
which thus becomes large enough to be advantageously em-
ployed by being lent out at interest to such of the members
as desire advances ; and the interest, as soon as it is received,
making fresh capital, is lent out again and again, so as to be
continually reproductive.   Large sums may be raised in this
manner; for, to take an example, if 1000 shares were sub-
scribed for at 10s. per month per share, the amount in one
year would be £6000, which, month by month as received,
might be advanced to any members, who should wish to
become borrowers.   The payments of BORROWERS are so
calculated as to enable them to repay, by equal monthly or

less frequent instalments, within a specified period, the principal of the sum borrowed and whatever interest may be due upon it throughout the duration of the loan. The other members who have not borrowed, and who are generally called INVESTERS, receive, at the end of a given number of years, a large sum, which is equivalent to the amount of their subscriptions with compound interest accumulated upon them.

The idea of a society upon this principle, correctly formed and afterwards properly managed, is of the most admirable kind. For on the one hand, it holds out inducements to industrious individuals to put by periodically from their incomes small or large sums, which are invested for them by the society, and, at the end of a certain time, are repaid to them in the shape of a large accumulation, without their having themselves the trouble of seeking for suitable investments; while on the other hand, the money subscribed, being advanced to some of the members, enables them to purchase houses, or similar property, and to repay the loan by small periodical instalments, extended over a number of years.

3.—As regards the purchasing of house property, Benefit Building Societies must be deemed peculiarly beneficial. We have only to consider how large a portion of a man's income is usually absorbed by the payment of rent, especially among the lower classes, who pay for their tenancy much more heavily than their richer neighbours, considering the relative value of the houses which they occupy. It has been justly said, that " Every one knows something of the ultimate cost of hiring furniture for their houses or lodgings; they know that it is much more advantageous to the hirer of furniture to buy the articles outright than to pay continually for their use; and, therefore, most prudent people in the middle and humble walks of life, make it a rule to purchase their own furniture and other articles of domestic comfort and convenience. They know that the price paid for long hiring is at least equal to the original price of the article hired. And

yet how many thousands of persons there are in the Metropolis only, who deem it an unwise extravagance not to purchase their articles of household furniture, and yet are quite content to hire their homes.   What numbers occupy hired houses or apartments, to deposit their own furniture in."

4.—It is, however, only by means of these societies that persons, who are not possessed of capital and who merely receive their incomes periodically, can ever become possessors of a house ; and this they are enabled to do only from the practical fact, that the annual repayments, required by a society upon a loan, do not much exceed the rent of a house, which could be purchased with the sum borrowed ; so that a man living 10 or 14 years in a house, instead of paying his rent to his landlord and thus losing so much money for ever, pays it with a small addition to a Building Society for a limited number of years, and in consideration of his consent to this arrangement, the society advances him at once the money requisite for the purchase of the property, which thus in the stipulated time, when the loan has been repaid with interest, becomes entirely his own, the money advanced being in the meantime secured by a suitable mortgage.

5.—Such is the simple outline of the plan pursued in the practice of Benefit Building Societies, and if efficient means could be provided for securing correctness in their principles of calculation and a fair and honourable way of carrying out their object, these institutions might undoubtedly be considered as an excellent application of the system of mutual association.   A private individual usually finds it impracticable to obtain an advantageous accumulating interest for the smaller sums, which he can spare from his necessities. This arises from the circumstance of his having no means of procuring satisfactory information respecting the adequacy of any security contemplated for his investment, nor is he in the way of hearing of remunerative opportunities, which present themselves from time to time.

An association, however, of provident persons can command all that is wanting to the single member; and, although the trifling contribution of each by itself would be too small to be capable of reproductive investment, yet, when united with others in a large sum, it becomes a proportionate participator and has its representative in the aggregate profits of the general body. Moreover, where there exists a variety of amount of talent and capital, their union for the purposes of carrying out the same design facilitates and renders possible its accomplishment. The efforts of a body of men in pursuit of a good object are generally successful, whether they endeavour to attain for themselves definite and tangible results by the operation of great commercial enterprises, or whether they combine with the provident desire to avert, as far as possible, the pecuniary loss, to which the death of any individual among their number would expose the members of his family. As an application of the former species of association, though in a limited degree and among humble classes, Benefit Building Societies have proved a remarkable illustration of the great advantages conferred by the working of this principle, but they are yet so obscured by defects and errors, as to require the application of many improvements, both in their system and practice, to prevent them from sinking into disrepute.

6.—The first Benefit Building Society, which can be traced, was founded in 1815 under the auspices of the Earl of Selkirk. It was a village club at Kircudbright in Scotland. Other institutions of a similar kind were afterwards established in the same kingdom under the title of ' Menages,' and the system was soon adopted in England by societies formed in the neighbourhood of Manchester and Liverpool, and other parts of the North. After the year 1830 they increased so rapidly, that on the 14th of July 1836, a special act (6 and 7 William IV, cap. 32) was passed for their encouragement and protection, in the provisions of which were embodied certain clauses applicable to their conduct, which were included in

the statutes relating to Friendly Societies, passed in the
reigns of George III and George IV. As a proof of their
numbers it may be stated that up to the 30th September 1850,
there had been registered in the united kingdom considerably
over 2,000 societies, of which in England alone 169 were added
in the first nine months of that year—a proportionate increase
having taken place in Scotland and Ireland. Of these socie-
ties, there is evidence to shew that about 1,200 are yet in
existence, the total income of which is calculated at not less
than £2,400,000 a year. In fact, there are two or three whose
annual incomes are between £50,000 and £60,000 each.

7.—The Act of Parliament just mentioned was passed in
1836, under the designation of "An Act for the regulation
of Benefit Building Societies," for the express purpose of
encouraging the formation of such institutions, by granting
them various privileges, among which is the power of charging
a higher rate of interest than was formerly allowed; while, to
protect their subsequent operations, it was enacted, that each
society should be governed by certain rules, to be approved
of, and so certified, by a barrister appointed by Government.

When this act was passed, it seems to have been overlooked
that societies of this kind would be exposed to more serious
danger than ever, when thus encouraged by a special act, if
the rates of subscription were to be left unguided by any
advice or check furnished by competent authority. This cir-
cumstance has been the cause of considerable mischief, inas-
much as by far the greater number of the existing building
societies are founded on incorrect principles of payment, and
many evince on the part of their originators much ignorance,
even of the simplest operations of compound interest. In
some instances the statements put forth are very extravagant,
and it would not be easy to account for the confidence with
which they are too often received, were it not that a species
of fascination for this kind of investment seems to possess the
minds of the industrious classes; and even persons of superior

position, who would be expected to have more information, have united in giving their sanction to the error, for it has been found that no Benefit Building Society has ever been started, however ridiculous its pretensions, which has not speedily succeeded in drawing together a number of shareholders.

8.—The tone of moderation assumed in many of the prospectuses appears sometimes to proceed from an honest conviction on the part of their authors, and, as such, is but too well fitted to gain the confidence of single-minded persons: it is not unusual to find some impossible project represented as "no speculation—no scheme, by which uncertain results are to be obtained, but a sober, well-tried, and successful mode of associating together a number of persons for the benefit of the whole," and then, although it is deemed unnecessary to give the grounds upon which their promises are founded, they shelter themselves beneath the mantle of legislative sanction, and adduce the Act of Parliament as being of "itself sufficient evidence of the favourable opinion entertained by Government of their Society." It cannot be wondered at that statements, advanced in such language as this, and supported by so high an authority, too frequently gain the confidence of the public.

9.—Nor is it thus only that the legitimate object of Building Societies has been perverted. In order to render them popular and attractive, the projectors have also, in many cases, not contented themselves with promising to the poor but industrious man the privilege of becoming the possessor of a house by easy means; but have unhappily infused into him an eager desire to obtain a disproportionate amount of gain in his purchase. Hence it comes to pass, that, instead of his feeling a lively satisfaction, at being able to get possession of his house by the payment to a society of very little more than the amount of his rent during a reasonable number of years, he is taught to believe, that the important advantage he covets can be obtained for him by means and within a period of time, which common sense ought to have suggested as impossible.

Whilst this attraction is held out to the borrowers, a similar sacrifice of principle is made to the investers, or non-borrowers, who are promised large accumulations at the end of a limited number of years, in return for disproportionately small monthly subscriptions. The same prospectus will frequently contain these incompatible statements, and yet the subscribers believe with implicit and blind faith in the virtues of the scheme, into the practicability of which they do not trouble themselves to inquire. They lose sight of the fact, that, in saving a little money they are but providing against misfortunes and the exigencies of life: that facilities for the investment of their savings are only valuable, in so far as they increase their means for that purpose, and that, not for one moment, should they labour under the delusion that, by joining this or that association, their fortunes can be made without trouble. Such hopes cannot receive too strong a check, as they give rise to ideas, which lead the working classes beyond their sphere, and incapacitate them for the exertion necessary to maintain them in it, and thus cannot fail to induce misery and disappointment in the end.

10.—In addition to the discouraging effect produced by the errors introduced into so many existing societies, there are other obstacles to their complete success, that arise from some imperfections in the Act of Parliament relating to them, the discussion of which would be too long in this place. Moreover, from these societies having been, up to a recent period, chiefly dependent on the lower ranks of life, their resources have been too limited to render their operations sufficiently important to attract the attention or secure the assistance of persons of information or talent. In the presence, however, of these objections or difficulties, it may confidently be affirmed, that their introduction into this country has been accompanied by very happy results in promoting habits of economy and prudence among the poorer classes. Much good has been obtained by their enabling so large a number of persons to

become possessors of houses and land, which, on the conclusion of their payments, they occupy free of rent, and can transmit as a little property to their family. This pecuniary interest serves at once to bind them to the soil and to promote a feeling of love and veneration for the national institutions of their country.

11.—Yet it is remarkable that this excellent principle has been completely overlooked by a class of persons, in more easy circumstances, to whose case it would admit of more ready and certain application. There are a vast number of professional men, and others engaged in commercial pursuits, with ample means, who continue for years to pay away large sums in rent, without reflecting, that, by uniting together in the formation of a superior kind of Benefit Building Society, they would be able to realise additional property for their families, with but little extra outlay. Such a society would also offer another channel for temporary investment to many non-commercial persons of the higher classes, who would be willing, as Investers, to lay out, from time to time, comparatively small sums of money at advantageous interest.

12.—Hitherto the money accumulated by these associations has been devoted solely to the purpose of enabling members to become purchasers of houses and land, or similar property; yet, as far as the principle is concerned, there is no reason why it should not be applied to other objects, provided the investment obtained be equally safe. Illustrations of this kind will be given further on (Chapter 8), where will be found remarks on the plan of a Building Society, the shares of which, by the adaptation of a combination of Life and even Fidelity Assurance, can be made payable at the end of a definite number of years, or sooner in case of death; while, at the same time, they may serve as security for the fidelity of the possessor, when holding a situation of trust.

We shall conclude this chapter with a statement of some of the leading examples of the various uses, to which Benefit Building Societies are at present applicable.

1st.—*Provisions for Old Age* may be secured, payable at
the end of any number of years, by a person joining
the society as an invester.

2nd.—Houses can be *purchased*, instead of being hired,
by an inconsiderable increase of annual outlay.

3rd.—Heads of large commercial establishments and
ministers of parishes may, by affording encourage-
ment, advice, and protection in the formation of such
societies, secure more benefit for their dependents and
the humbler members of their charge, than can be ob-
tained by any effort, however extensive, of private
charity.

4th.—Leaseholders, such as farmers or others, desirous
of providing for the *fine* on renewal of their leases (if
for terms certain), can do so by joining a society as
investers, and subscribing for such number of shares
(to be received in full at the required time) as will
meet the amount desired. This obviously would be to
many an easy mode of providing for what is now often
felt to be a difficult and onerous charge.

5th—The Premiums or Fees for placing boys as appren-
tices or articled clerks to solicitors, engineers, &c., can
be obtained in a similar way.

6th.—*Marriage and Family Endowments* of all kinds can
be secured.

7th.—Benevolent Institutions and Religious Societies
can borrow funds for the erection of churches, alms
houses, schools, chapels, &c., or for the immediate
paying off of any debts from such institutions, and the
amount borrowed can subsequently be repaid by chari-
table contributions periodically collected.

CHAPTER II.

ON THE NATURE OF THE OPERATIONS OF COMPOUND INTEREST.

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" L'Intéret est le loyer d'un Capital preté, ou bien, en termes plus exactes, achat des services productifs que peut rendre un Capital."—Say, Economie Politique, Tom. ii, p. 480, Ed. 4eme.

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ART. 13.—PREVIOUSLY to describing the theoretical construction of a Benefit Building society, or any other similar association, a few remarks will be necessary respecting the principles of compound interest, on which the rates of subscription are supposed to be based, so that the general reader may be enabled to judge of the manner in which the advantages to be derived from these institutions are attainable, and appreciate the influence, which the practical contingencies, examined in the succeeding sections, may be expected to have on the results produced by a mere theoretical investigation of the subject.

It would be irrelevant to the object of this work, to enter into the doctrine of interest further than may be necessary to elucidate and explain the nature of Benefit Building and other Investment societies ; we shall therefore confine ourselves to a few general outlines, and refer the studious reader, for more extended information, to Treatises specially devoted to the science ; we have treated the subject analytically in the Appendix, and in this chapter have merely collected some of the practical results.

INTEREST OF MONEY.

14.—It is the custom in all civilized countries, that one
person borrowing a sum of money from another, should pay
him periodically for its use a certain consideration under
the name of Interest.   This consideration varies in amount
according to the nature of the security given for the loan,
the state of public monetary affairs, and occasionally other
circumstances.   In order to simplify commercial transactions
and establish a standard of measurement for them, annual
rates of interest have been formed, varying from £1 upwards
for every £100 borrowed.   This interest, although specified
nominally as an annual rate, is payable at such regular periods
as may be agreed upon, either by annual, half-yearly, or more
frequent equal instalments, each periodical payment being,
however, always proportional to the annual rate.

The *highest* rate of interest that a lender may legally
demand or receive for the use of his money, usually varies
with the commercial and political position of the country in
which the transaction takes place, and until lately in England
was fixed at five per cent. per annum, although special ex-
ceptions were made for the investments of building societies
and similar institutions.   It does not seem clear for what
reason the rate of five per cent. was selected as the limit
allowed; and it has been a question giving rise to a variety of
opinions, whether the existence of any such limit has not
been the occasion of more injury to commercial affairs, amidst
the fluctuations of public confidence, than it has produced
good by the restraint imposed upon usurious practices.

SIMPLE AND COMPOUND INTEREST.

15.—In treating of the advantage derived by investing
money, it is important to distinguish between Simple and
Compound interest.

If the sums received by the lender from time to time on

account of interest are placed by him in similar investments, as so much new capital, it is obvious that he not only realises interest on the sum originally lent, but also on *its interest*, thus increasing materially the advantage produced by his money, for which he is consequently said to be receiving *compound* interest.

The same would be the result, if the borrower, instead of actually paying the interest when it becomes due, were allowed to increase his debt thereby, with the understanding that the whole should be paid off in one sum at the end of the time for which the loan was made ; the borrower undertaking to place his creditor in the same pecuniary position as he would have been in, had the instalments of interest been actually paid periodically and themselves reinvested.

If, however, instead of supposing the interest, which should have been paid from time to time, to be reproductive, the borrower were only bound to pay the sum of the periodic instalments on the original amount lent, without anything additional for their non-payment at the epoch when they became due,—then he is said to be paying only *simple* interest ; for example :

Suppose £100 were borrowed for four years at the annual rate of five per cent. simple interest, which is to be paid at the end of the fourth year with the loan, then the amount payable at that time would be £100 and four times £5, or altogether £120.

16.—The way *compound interest* accumulates will be seen by the following example :—Suppose A lends B £1000, for fourteen years, at five per cent. interest, payable annually and at the *end* of each year. At the end of the first year A receives from B £50 for interest, which he reinvests by a further loan to B, or to some other party. The amount altogether thus lent is then £1050. At the end of the second year A receives £52. 10s., as interest at five per cent., which

he again lends out immediately, making his total investment
£1102. 10s. At the end of the third year the interest received
upon this loan of £1102. 10s. is £55. 2s. 6d., which, being also
lent out, causes the total sum invested to be £1157. 12s. 6d.,
on which, at the end of the fourth year, A again receives in‑
terest, and so on, until the end of the period, the advantage
derived from these repetitions of investment increasing every
year.

In this example we have seen that the lender in three years
clears £157. 12s. 6d. in the shape of interest on the £1000
originally lent, which is £7. 12s. 6d. more than he would have
obtained by *simple interest.* In the same way if we refer to
Table 3, which is formed on the above considerations, it is
found that at the end of fourteen years the £1000 would
amount to £1979. 18s. of which £979. 18s. arises from com‑
pound interest, being £279. 18s. more than at simple interest.

17.—As in the practice of the societies which form the
subject of this work, interest is always supposed to be com‑
pound and not simple, we will confine ourselves to remarks
on the various results appertaining to the realization of the
former, premising that whenever the *rate* of interest is men‑
tioned, it always signifies the *yearly* rate, whether it be paid
in reality then, or at more frequent intervals.

18.—Respecting tables of interest and the preceding exam‑
ple, it should be observed, that the calculations are only true,
supposing the money, which is received yearly, or otherwise,
for interest, to be immediately transferred to some investment
producing the same rate of interest, and in as frequent in‑
stalments as the original investment did. The loss of a day
falsifies the calculations, and neglect of this most important
consideration is the cause of the frequent discrepancies which
are seen between valuations made on theory, and those con‑
sistent with the circumstances of actual practice.

19.—In commercial transactions, interest is more frequently due half-yearly than yearly, and sometimes quarterly or monthly, which materially increases the amount that a sum of money will accumulate to at the end of a given time, since the instalments of interest are then susceptible of more frequent investments themselves, as so much new capital bearing interest. One instance will prove this:—Suppose £1000 were lent for one year at five per cent. rate of interest, payable *half-yearly*. At the end of six months the lender receives half a year's interest, or £25. This, if invested immediately, will itself produce, in six months, 12s. 6d. interest, or the lender will, at the end of the year, by his investment of £1000, have made 50l. 12s. 6d., instead of the £50, which he would have received had the interest been only payable yearly.

The greater advantage derived by the receipt of interest in equal instalments, more frequent than once a year, is shewn in Table 4, where are given the actual interests, realised at the end of a year, corresponding to various nominal rates, according as it is paid half-yearly, quarterly, or monthly, or even at shorter intervals of time. When interest is supposed due at the end of every moment of time, it is said to be *momentaneous*, and this hypothesis, to which other rates can be reduced, gives rise to several curious investigations, which are discussed at some length in the Appendix. See also Tables 5 and 6.

20.—In cases where the *amount* of a sum is to be determined for a period of years beyond the limit of the tables which are used, the results given in them may yet serve for the purpose.

Example: suppose the amount of £100 is desired in thirty years at five per cent. compound yearly interest. Ascertain the amount in twenty-five years by Table 6, and then by rule of three determine what the sum produced at the end of twenty-five years will accumulate to in five years more; or

what is the same thing, the amount of £1 in thirty years is equal to the product of the respective amounts in twenty-five and five years. The multiplication is very easy when decimals are used.

Thus in twenty-five years at five per cent. £100 amounts to 338*l*. 12*s*. 8*d*. Again in five years £100 would amount to 127*l*. 12*s*. 6*d*., therefore in five years 338*l*. 12*s*. 8*d*. will amount to 432*l*. 3*s*. 10*d*.—or the amount of £100 in thirty years is 432*l*. 3*s*. 10*d*.

The General Theorem is :—

The amount of £1, *in any given number of years, is equal to the* product *of the respective amounts of* £1 *in any two or more periods of years, into which the given number can be separated.*

ON DISCOUNT AND PRESENT VALUE.

21.—If a person be entitled to a certain amount at the *end* of a given time, and wish in its stead to take its equivalent value at present, the sum, which he ought to receive, is termed the *present value* of the amount in question, and the difference between the two is called *discount.* The discount will be greater or less according as the sum due is discounted at simple or compound interest. In ordinary mercantile transactions, to avoid the necessity for tables, it is usual to charge a discount, equal to the simple interest on the whole debt, for the time that exists between the present and the day on which it is due. Thus if the amount be £100, and there remain two years before it is due, the discount at five per cent. rate of interest will be £10 : for eighteen months it will be 7*l*. 10*s*. 0*d*., and similarly for other periods. This is sufficiently accurate for the practical purposes of commercial affairs, and in fact is the only way in which the necessity for separate calculations on every occasion can be obviated ; but for debts extending over a large number of years, such a method of computing the discount would give a result, which

would be much too large. When money is correctly discounted at a certain rate of compound interest, the *present value* is such a sum as will, by being improved, if invested at once at the same rate, accumulate at the end of the given time to the amount due.

Discount, therefore, being the inverse of interest, we have this fact, corresponding to the one mentioned art. 19, that :— The present value of a sum due at the end of a given time, is less in proportion to the greater frequency of the periods, at which the interest is supposed to be due.

Example : The present value of £1000, due in five years and discounted at the rate of 4 per cent. compound yearly interest, is 821*l*. 18*s*. 6*d*. But if the interest be calculated as due half-yearly it is 820*l*. 7*s*. 0*d*., and similarly it is less if calculated as due quarterly or monthly.

Tables, which give the amounts to which a present sum will accumulate, will serve inversely to give, by rule of three, the present value of a sum due at the end of a specified number of years.

For if £1 amount at 3 per cent. yearly interest to 1*l*. 3*s*. 2*d*. in five years (see Table 3), then £1 is the present value of 1*l*. 3*s*. 2*d*. due five years hence. Therefore, by rule of three, 17*s*. 3*d*. is the present value of £1 due five years hence.

22.—*The important theorem in Art. 20 holds also for present values.*

23.—A table of present values is worth attention. (See Sec. 2 Appendix.) If two rates of interest be followed down the table, and the *difference* of the present values of £100, at those rates of interest, be measured, it will be seen that there is a period, at which the difference attains a *maximum*. In other words, If one person A obtain a present loan or advance from another person B, in return for which he is to pay him a sum S in a certain number of years; and A, out of the money he has received, lends a smaller sum (through deduct-

ing a higher rate of interest) to a third party C, from whom in repayment he is also to receive a sum S, which will enable A to pay his debt to B : then the immediate profit derived by A will be greatest, if he select the proper term of years for his transaction.

ON ANNUITIES OR PERIODIC PAYMENTS.

24.—Having explained the operations, by which a *single* sum changes its value, under the influence of interest in the course of time, we will proceed to shew, what is the result, when several sums are taken together into consideration. ANNUITY is a term applied to the periodic payment of money at fixed intervals. It is said to be a yearly, half-yearly, quarterly, or monthly annuity, according as the periodic payments are made once a year, or in two half-yearly, four quarterly, or twelve monthly equal portions. Annuities are also termed *certain*, if payable for a definite number of years; but *contingent*, if their duration depend on adventitious circumstances, such as the existence of one or more lives, in which case they are called Life Annuities. We will confine our attention to the first kind, in which there are only two fundamental questions requiring special examination, from which every problem relating to annuities can be deduced, premising that, unless the contrary is stated, the annuities are supposed payable at the *end* of each year :—

First,—What sum an annuity would *amount* to at the end of the time of its duration, if each periodic payment were to be invested and to produce compound interest:

Secondly,—What *present sum* paid down is equivalent to an annuity payable for a given number of years:

These values will vary with the rate of interest supposed in the calculations, and also with the frequency of the intervals, at which the periodic payments of the annuity, or instalments

of interest thereon, are supposed due. It is obvious, however, that, first :—The *amount* of an annuity, at the end of the time during which it is to continue, is the sum of the accumulations of each periodic payment, improved at compound interest, from the date at which each was paid or due, up to the time of the expiration of the annuity. And secondly :— The *present value* of an annuity is equal to the sum of the present values of each of the periodic payments, discounted at compound interest ; each payment being separately discounted for the respective distance of time between the present and the date at which it is due.

25.—Since an annuity is strictly equivalent to its *Present value,* the party purchasing and the other selling being, as far as the mathematical considerations go, in equal positions ; it follows, that the *Amount* of an annuity is exactly equal to the amount, to which the present value of the annuity would accumulate, if itself invested and improved at the same interest, until the end of the given number of years.

Hence, when accurately calculated at the rate of interest agreed upon, the Amount and the Present value of the annuity are each exactly equivalent to the annuity itself, and are thus equally applicable to the affairs of life, the one being frequently exchanged for the other. Thus, a debtor may clear off a given sum now due, by paying to his creditor, either an equivalent annuity for a certain number of years, or its amount at the end of that time ; and a land-holder, whose estate is charged with an annuity, can compound for it by giving a present sum in cash.

As an example :—referring to Tables 9 and 10, we see that at 7 per cent. rate of *yearly* interest, the present value of 8*l.* 8*s.* 0*d.*, paid at the end of each year for ten years, is nearly £59, and also that the amount of 8*l.* 8*s.* 0*d.* a year at the end of ten years is 116*l.* 1*s.* 2*d.*; moreover Table 3 shews that the single sum £59 improved at 7 per cent. compound

interest for ten years gives the same amount, proving that the three are equivalent to each other; or in other words, supposing two men each to undertake to pay 8*l*. 8*s*. 0*d*. at the end of each year to a society for ten years, and that one desired to receive in return the present value of his ten years' payments, while the other determined to wait for his share until the end of the time, they would both be fairly treated, in respect of their subscriptions to the society, if the one received £59 at once, and the other 116*l*. 1*s*. 2*d*. at the termination of the annual payments.

The same reasoning applies to annuities of greater or smaller amounts for different periods of duration, and a society receiving, as in the above example, annuities from its members and paying to some their *present value* and to others their *ultimate amount,* is on the general principle of a Benefit Building Society.

26.—The whole theory of annuities cannot be explained without some analytical investigations, such as will be found in the Appendix. For practice, Tables 9, 10, and 11 may be used, in which are given, for various interests, the amount and present value of an annuity of £1, payable at the *end* of each year, and the annuity which £1 will purchase. These tables, however, will serve for annuities greater than £1, and they may be adapted when the annuity is paid at the *beginning* instead of the *end* of each year.

27.—If the annuity be supposed payable half-yearly or quarterly, or *monthly as in Building Societies,* some modification is necessary in the tables, the nature of which is explained in the Appendix. But it is clear that:—A *smaller* annuity ought to be paid during a specified number of years, in consideration of a given present sum, debt, or purchase-money, in proportion to the *greater* frequency of the periods, at which the equal portions of the annuity are to be paid. Similarly:—
The accumulated *amount* of an annuity, at the end of a given

time, increases with the *frequency* of the intervals at which the instalments are paid.

28.—It will be observed that:—For a given annuity, the *amount* at the end of a given number of years will increase with the *rate of interest* at which the money is supposed invested. And inversely:—The *larger* the accumulation promised in return for the subscription of an annuity for a stated time, the *higher* will the rate of interest be, at which it must be invested. Hence, the first point to be thought of, when an accumulation is promised for an annuity paid, is:— Can the necessary rate of interest be obtained? Can every instalment of the annuity be immediately and continually invested throughout the whole time, at the rate required?

Thus for example:—£6 a year will amount to 82*l*. 18*s*. nearly, in ten years, at 7 per cent. rate of interest. But in order that £6 a year may amount to £120, the rate of interest required is $14\frac{1}{2}$ per cent. (See Appendix.)

Again, that £6 a year may amount to £140, or £3 a year to £70 in the same time, the rate of interest required is nearly 18 per cent.

29.—The *number of years*, during which a given annuity is to be paid in return for a given present sum, debt, or purchase-money, increases with the *rate of interest* supposed to be paid. Inversely:—The advantage obtained by a borrower, who pays a certain annuity in return for a loan, diminishes as the number of years increases. Example:—If a borrower pay 8*l*. 8*s*. 0*d*. a year during ten years for a loan of £59, he is paying at the rate of 7 per cent. compound *yearly* interest, but if the time be increased to 13 years, the rate of interest will be about $10\frac{1}{2}$ per cent.

30.—On comparing Table 3 with Table 9, it will be seen that *The difference of two successive values of the annuity-*

table of amounts is equal *to the sum given in the table of single* amounts *for the lesser number of years.*   Example:—

> The amount of *an annuity* of £1
>   in eleven years, at 5 per cent. $=$ £14·2067
>   Ditto   ditto in ten years.. $=$ £12·5778
>
>   Difference...... $=$ £1·6289

which is the amount of a *single* pound at 5 per cent. by Table 3. So that Table 3 might in fact be calculated from Table 9, if that were given.

The converse holds for *present values,* see Tables 8 and **10.**

31.—If annuity payments be *deferred* for a few years, the *present value* and the *amount* of such an annuity can be easily deduced from the tables for immediate annuities. For instance, the present value of a *deferred* annuity of £1 for ten years, at 5 per cent., (the first payment to begin at the *end* of five years,) is equal to the present value of the *immediate* annuity:— *viz.,* £7·7217 for ten years divided by the *amount* of £1 for four years, or by £1·2155. The answer is £6·3527.

32.—When a sum of money increases to double its value by the accumulation of compound interest, the analytical investigations assume a peculiar form, from which we have deduced the following theorems as bearing on the system of many Benefit Building Societies:—*(See Appendix).*

>   1.—For all rates of interest not exceeding **10** per cent.:— *The number of years, in which a single sum will become double in amount by the accumulation of compound interest, may be found by dividing* **70** *by the rate of interest per cent.,* and taking that whole number which is *nearest* to the quotient obtained.

The accuracy of this theorem may be judged of by Table 7, but the property is valuable as furnishing a simple rule and one easily remembered. Thus:—

If the rate of interest be 2 per cent,	then the number of years will be	$\frac{70}{2}$ nearly,	$= 35$ years.
,, $2\frac{1}{2}$,,	,,	$\frac{70}{2\frac{1}{2}}$,,	$= 28$
,, 3 ,,	,,	$\frac{70}{3}$,,	$= 23\frac{1}{3}$
,, $3\frac{1}{2}$,,	,,	$\frac{70}{3\frac{1}{2}}$,,	$= 20$
,, 4 ,,	,,	$\frac{70}{4}$,,	$= 17\frac{1}{2}$
,, $4\frac{1}{2}$,,	,,	$\frac{70}{4\frac{1}{2}}$,,	$= 15\frac{5}{9}$
,, 5 ,,	,,	$\frac{70}{5}$,,	$= 14$
,, 6 ,,	,,	$\frac{70}{6}$,,	$= 11\frac{4}{6}$
,, 7 ,,	,,	$\frac{70}{7}$,,	$= 10$
,, 8 ,,	,,	$\frac{70}{8}$,,	$= 8\frac{6}{8}$ or 9 nearly
,, 9 ,,	,,	$\frac{70}{9}$,,	$= 7\frac{7}{9}$ or 8 nearly
,, 10 ,,	,,	$\frac{70}{10}$,,	$= 7$

which agree with the whole numbers given by the table.

When the rate of interest is higher than 10 per cent., a larger dividend than 70 must be taken.

2.—The *amount of an annuity* of £1, in the exact time in which a *single* sum would double, is equal to £100 *divided* by the rate of interest per cent.

Thus, at 5 per cent. money will double in 14 years and a fraction, and £1 a year for the same time will amount to £100 divided by five, or £20, which agrees with Table 9.

33.—From theorems 1 and 2, we have:—

3.—*If a sum of money be borrowed for such a time, that, if unpaid, it would become doubled by the accumulation of compound interest, then the debtor can liquidate his debt with interest in that time, by an annuity equal to twice one year's interest on the sum borrowed :—If the*

time be a certain number of years and days, the last
payment of the debtor will be a fractional portion of
the year's annuity, proportionate to the fractional
number of days.

Thus, if £60 be borrowed for 14 years 76 days, (which is the
exact time in which money will double at yearly 5 per cent.),
then the debt can be repaid, including principal and interest,
by an annuity for that time after the rate of £6 a year, since
£3 is the interest on £60 at 5 per cent.

Again:—If £60 be borrowed for 10 years 90 days (the exact
time of doubling at 7 per cent.), then a yearly annuity of 8*l*. 8*s*.
for that time will repay principal and interest—4*l*. 4*s*. being
one year's interest on £60 at 7 per cent.

If the above annuities were paid in *monthly* instalments of
10*s*. and 14*s*. the debts would be repaid in very nearly fourteen
years and ten years respectively.

    4.—The *interest*, at which money will double in a *given*
    number of years, is nearly equal to 70 divided by the
    number of years.

    5.—If two equal sums be invested for the same time,
    the one at simple, the other at compound interest, the
    former will increase 70 per cent. in the time in which
    the latter will double; or, whatever be the rate, the
    advantage in the time of doubling will be 30 per cent.
    in favour of compound interest.

34.—The results obtained by means of the above theorems
become more accurate, when the instalments of interest or
annuity are due more often than once a year, and, in the case
of *monthly* payments, they are found to differ but very little
from the real values. The exact degree of approximation af-
forded by these theorems we have examined in the Appendix,
together with the *general extension, of which they admit, to*

the case of money increasing to several times its original value.
One is most important :—

If a sum of money be borrowed for such a time, that (if unpaid it would amount to f-fold its original value) then the annuity which would pay it off, principal and interest in that time, is equal to f divided by f, less one, times one year's interest on the debt.   Or :—

The amount of an annuity *of* £1 *(accumulated at compound interest,* i *per cent., during the* WHOLE *time in which the* single *sum* £1 *would accumulate to* £.f*) is equal to* £$\frac{100\,(f-1)}{i}$

35.—The Appendix also contains other theorems, which have been deduced, relating to various interesting points in the working of Compound Interest.   The results in some instances, however, are obtained only by the aid of anlaysis of a somewhat high order.   At the end of the practical Section 4, will be found the * Formula for calculating tables for the allowance of interest, in case a society undertake to receive occasional *deposits,* with power to the depositer of withdrawing the whole or part of the sum, under certain conditions.

* [The principle referred to is analagous to the feature of Life Assurance denominated "*Deposit-Assurance,*" which was introduced by the Author some years ago into the plans of the Western Life Assurance Society.]

CHAPTER III.

ON BENEFIT BUILDING SOCIETIES AS AT PRESENT CONSTITUTED.

SECTION 1.

The theoretical principles of a Terminating Society.

['*A minute inquiry into the various systems of these associations has confirmed an opinion, suggested by previous experience, that, among other defects, one stands prominent as the fatal obstacle in the way of their success, arising from the almost universal condition, by which the existence of a Benefit Building Society is limited to a specified number of years.*'—See Preface to First Edition].

ART. 36.—Benefit Building Societies are generally founded with the same object, but carried out with various modifications. They are now divided into two distinct classes: the one *terminating*, the other *permanent*. A terminating society is one, which it is intended to close at the end of a certain period, when all the shares of the members have realized their full amount. In a permanent society it is merely the membership of a shareholder that terminates at the end of a fixed number of years, (when he receives the full value of his shares,) the society itself continuing for ever. Whichever system be adopted, the object of a Building Society is still the same, namely, as we have stated in Chapter 1, to enable individuals to associate together and unite their subscriptions from time to time in one common fund, some for the simple purpose of placing a portion of their incomes in an advantageous invest-

ment, others with the view of borrowing money, by which they may purchase houses or other similar property.

But, in order that one man may borrow, there must be others who lend. To induce a person of limited means to lay by periodically a portion of his income merely as an investing member, some strong incentive must be held out, and the only one that has been found successful, is to offer him a high rate of interest for the use of his money. The legislature, being aware of the force of this consideration, and of the importance of removing any obstacle at that time existing, passed the Benefit Building Society Act of 1836, in which the following clause was specially introduced:

" And be it enacted, That it shall and may be lawful to
" and for any such society to have and receive from any
" member or members thereof any sum or sums of money,
" by way of bonus on any share or shares, for the privilege
" of receiving the same in advance prior to the same being
" realized, and also any interest for the share or shares so
" received, or any part thereof, without being subject or
" liable on account thereof, to any of the forfeitures or
" penalties enforced by any Act or Acts of Parliament re-
" lating to usury." So that, in other words, the society might charge its borrowing members, under the name of bonus, any rate of interest upon a loan which it might deem advisable.

37.— In this chapter we shall examine the character and deficiencies of Terminating societies, and in the next enter upon the question of the merits of their successors on the new principle of Permanence.

The majority of the terminating building societies announce at the time of their formation, that their shares are a fixed sum, usually £120, to be realised at the expiration of a given number of years, by which time, it is expected, the association will terminate with that result. The number of

years is generally 10 or 14, although some societies exist whose expected duration is 11 or 13 years, and some in which the amount of the shares is £50 or £100. The subscriptions of the members are a few shillings a month per share, varying with the number of years calculated as the probable duration of the society, but not allowed by the statute to exceed 20 shillings per share, and the Investing or non-borrowing members are promised the amount of their shares at its close. The subscriptions are received at monthly meetings, and, with as little delay as practicable, are lent to those members, who wish to become Borrowers, and to obtain a loan in the shape of a present advance on each share they hold or take up, in lieu of the amount, which they would otherwise receive at the end. The sum advanced per share of course depends upon the number of years, that remain between the time of borrowing and the date, at which the society is expected to terminate.

38.—To explain this we will take an example, but it must first be remarked, that, in most of the associations at present existing in the United Kingdom, which have any principle of reasoning for their guide, one of two rates of interest has generally been adopted as the basis of the calculations; their expected duration being consequently different. These rates are 5 or 7 per cent. per annum; but the interest, though taken at a nominal annual rate, is supposed to be realised at the end of each month, instead of at the end of each year. In practice many difficulties, to which attention is drawn further on, oppose the actual realisation of interest monthly; yet, for the purpose of an example, the question may be treated theoretically, as if no such impediments were in existence.

Let the case be that of a 14 years terminating society, formed on the basis of a 5 per cent. rate of interest, and consisting of shares of £120 each, on which every member pays 10s. at the beginning of each month during 14 years. This sum is assumed, because such a monthly annuity would, at 5

per cent. rate of interest *supposed realised monthly* and con-
tinuously invested and reinvested, accumulate to £120 at the
end of nearly 14 years; hence £120 is the amount that a
non-borrowing member would be entitled to receive at the
close of the society.

On the other hand it is known, that £60 cash, invested at
5 per cent. rate of compound *monthly* interest, will accumu-
late to £120 in nearly 14 years.   If then a member should
wish to discount one share and take its present value at the
beginning of the society, he would be entitled to receive £60,
in consideration of his subsequent monthly payment of 10s.,
or £6 a year for 14 years.   Similarly, should he desire to
borrow £300, or 5 times 60, he would have to make pay-
ments on 5 shares, amounting to £30 a year.

As the society progresses in its existence, the number of
remaining months, over which a borrower's payments can
extend, diminishes; so that the amount of advance per share,
which a member would be entitled to receive, if he wished to
borrow at a later period of the society than the beginning,
would depend upon the date of his first becoming a subscriber.
If he had only just entered before receiving a loan, the
amount of advance per share would merely be the discounted
present value of his future payments; but if he had been a
subscriber for some months previously, then, in addition to the
allowance for his future subscriptions, he would also be
entitled to a sum arising from his past payments.

Thus, for example:—In the 14 years society in question, a
member whose subscriptions are 10s. a month, or £6 a year
for each £120 share, if he wished to borrow in the first month
of the 7th year and had been a subscriber from the beginning,
would receive 42l. 1s. 1d. on account of his past payments
during six years, and 38l. 19s. 8d. in consideration of his
future subscriptions, making altogether 81l. 0s. 9d.   We quote
one of the societies on this plan, but this can easily be proved
correct by means of a monthly compound interest table.

But if the borrower had only just become a member at the beginning of the seventh year, and did not pay up any arrears or back subscriptions, he would merely be entitled to 38*l*. 19*s*. 8*d*. as an advance, in consideration of the payment of £6 a year, to be made by him during the remaining 8 years; and, under such circumstances, it is seen by rule of three that to obtain a loan of 81*l*. 0*s*. 9*d*., he would have to pay 12*l*. 9*s*. 6*d*. a year during the 8 years. So that in fact, the *nearer* a member, at the time of his first joining, or taking up the required number of new shares, and then borrowing, is to the epoch at which the society is expected to close, the *larger* will be his payments in return for a given loan. As a second instance, it would be found that, although a member, who borrowed £300 at the commencement, would merely pay £30 for 14 years, yet, if he took up the shares at the beginning of the 9th year and obtained the same loan, without paying up any arrear-subscriptions, he would then have to pay 59*l*. 18*s*. 0*d*. for the remaining 6 years. Such a high rate of repayment becomes very inconvenient to members of limited means, who may wish to borrow money for the purchase of house property, not at the beginning, but, when they have for some time been members; and the difficulty increases more and more, with the progress of the institution.

39.—The preceding is an example at 5 per cent. Societies formed upon the basis of 7 per cent. rate of interest are expected to last only 10 years, and on this supposition there exist a great many. The amount of the shares to be realised, at the end of such a period, is usually, as before, £120, for which the members pay 14*s*. a month for 10 years. This rate of payment is adopted, because such a monthly annuity would amount to £120 at the end of nearly 10 years, supposing each monthly payment *immediately*, as it is received, invested at 7 per cent. compound interest, calculated also as realised *monthly*.

Again:—since £60, if similarly invested at 7 per cent.,

would, with its accumulations from compound interest, amount to £120 at the end of nearly 10 years, it is obvious that a member effecting a loan upon a share at the beginning, and receiving £60 as its present value, would be in an equitable position with regard to a non-borrowing member, who waited for the full value of his share or £120. at the termination of the society.

40.—Other associations exist founded on other rates of interest, as 6 or 8 per cent., and of different expected periods of duration. The principle of calculation, however, is the same, and the same remarks apply to all, whatever be the rate adopted. The intention of each is to give to the investers the amount of their shares in full, at the close of the number of years representing the probable duration of the society; and throughout its existence to invest the funds, from time to time as collected, in the shape of discounted advances to any of the members who may wish to borrow. The amount of advance per share being supposed proportionate—*First: to the number of years or months that the borrower has already been a subscriber; and Secondly: to the unexpired time, which remains between the epoch, at which he obtains the loan, and the expected date of the termination of the association.*

41.—Such is the system of the superior class of terminating Benefit Building Societies, but it must not be supposed, that all or even the greater number of the existing associations are established on such accurate principles of calculation. This unfortunately is not the case. By far the majority are based on rates of subscription fundamentally unsound, and, in their subsequent dealings, both with the investers and borrowers, proceed on assumptions, which cannot be justified by theoretical or practical reasoning. Of this the next section will contain a few instances, which prevail in several hundreds of the societies now in existence, and are selected not as being by any means the most extravagant of the number, but simply from the extent to which they are adopted.

The defects in most cases are so numerous and varied, and in each individual society so interwoven one with another, that it will be necessary for the better separation of ideas, and in order to enable the reader to fully understand the details into which we are about to enter, that we should endeavour to introduce some classification among them. The chief heads under which they may be resumed are as follows :—

1.—Inaccuracy in theory : such as erroneous rates of subscription, &c.

2.—Practical causes, which nullify the results obtained from accurate theory : such as loss of interest, the expenses of management, &c.

3.—The *pecuniary loss* inseparable from the condition of termination.

4.—The great *inconvenience* caused to individual members by the terminating system : such as the difficulty of withdrawing at the time when a member may desire it, or of effecting the redemption of a mortgage on equitable terms, &c.

5.—Losses through mismanagement : viz., From too frequent inattention to the sufficiency or soundness of security accepted for investment ; or, from the consequences of inaccuracy in balance sheets, &c. &c.

Some of these defects will be explained by themselves in the next section ; others, to avoid the necessity for subsequent repetition, will be considered by way of contrast in the chapters, which treat of the advantages of the permanent principle and the practical working of building societies.

SECTION 2.

* Societies on erroneous principles.

42.—*First instance:*—Societies exist proposing to last 10
years only, and sometimes for a less period, the shares of which
are £120, and the payments of the investers, 10s. a month: that
is to say, for a subscription of £6 a year during 10 years, or
a total payment of £60, a member is promised £120 at the
end of that time.

Now, in order that the payment of £6 a year may accumu-
late with compound interest to £120, in the course of 10
years, a rate equivalent to $14\frac{1}{2}$ per cent. yearly interest must
be realised; and unless the subscriptions be continually in-
vested and re-invested at this rate, the promised results are
impossible; of this the reader may satisfy himself by referring
to the Appendix.

The borrower's repayments, however, do not bring into the
society a higher rate of interest than 7 or 8 per cent., and in
some cases much less; for the same prospectuses state, that
if a member desire an advance in the first year, he will receive
£60 on each share, (sometimes only £55,) in return for which
he will have to pay 14s. a month, or 8l. 8s. 0d. a year, for the 10
years, the extra 4s. being usually charged under the name of
redemption fee. A reference to Arts. 28 and 29 in the preced-
ing chapter, or to a compound *monthly* interest table, will shew
that the actual interest produced by these repayments, which

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* The attention of Trustees and Directors is requested more particularly
to the remarks contained in this section.

include principal and interest, is between 7 and 8 per cent.
per annum. The advances also, made in the second and sub-
sequent years of the existence of the association, are in the
same proportion ;—consequently, the subscriptions of the
members are incorrectly calculated to the large amount of
nearly 7 per cent. annual rate of interest, even although the
borrowers pay so high a rate as 8 per cent. Hence it follows,
that the promised results cannot be realised.

The above assumes that the monthly receipts are also re-
invested monthly. Such in reality is not the case. Indeed,
even if a society of this kind were to experience no pecuniary
loss from any of the causes, which will be examined further
on, yet the result would practically only be as follows :—By
Table 9, a yearly annuity of £6 invested continuously at 7
per cent. will accumulate to 82*l.* 18*s.* 0*d.* in 10 years ; leaving
a deficit of 37*l.* 2*s.* 0*d.* per unadvanced share, or nearly one-
third of the promised amount, at the epoch of the expected
termination of the society.

 * Again, even supposing the borrowers should unwittingly
consent to pay 10 per cent. interest for their loans, there
would yet be a deficiency of 24*l.* 7*s.* 6*d.* ; since the amount of
£6. a year in 10 years at 10 per cent. is only 95*l.* 12*s.* 6*d.*

This remarkable instance of inaccuracy of rates is the
more worthy of notice, as it prevails with various other less
important errors in a very great number of the existing
Benefit Building societies, and thus involves the pecuniary
welfare of many shareholders. There can be no doubt,
however, that it entirely arises from ignorance, for the same
prospectuses usually declare, that the annual rate of interest,
which is charged from the borrowers, does *not exceed* 4 *per
cent.* This last statement may probably be suggested by some
misconception founded on the circumstance of the borrowers
paying 4*s.* a month per share more than the investers.

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 * See an instance at the end of this Section, Art. 45, of unjustifiable
usury, which is prevalent among many of the old societies.

43.—* The *Second instance* is of a more complicated character, and is introduced with considerable pretension by its advocates as an improved plan of a Benefit Building Society.

The scheme professes to guarantee that the society shall positively *not* last more than 10 years; that non-borrowing members, by paying 5s. a month, or £3 a year, for 10 years, will be entitled to and shall receive £70 at the end of that time, which will be £40 more than the total amount of the 10 years' subscriptions ; also, that a borrower shall receive as an advance on each share, if there be *no* competitors with him for the same loan, the total of the 10 years' subscription or £30, in return for which he also shall pay 5s. a month or £3 a year for 10 years: or, in other words, they give us to understand, that a member can borrow £30, and repay the whole, including principal "and interest," by ten payments of £3 extended over 10 years.

If, however, there are several applicants for advances, then the prospectuses state—

" That the funds of the society shall be put up to open " competition ; and the same shall be awarded to those mem-

[* The following advertisement, which is extracted from a weekly periodical for May 1850, has during the past year been most industriously inserted, and will serve as a specimen of popular credulity :—

" *Immense success of Mr.* ———'*s Building and Investment Societies.*

£70 for every £30 Subscribed in a Fixed Term of Ten Years.

NOTICE.—The Members of the ————— BUILDING AND INVESTMENT SOCIETY may now (the Second Year having terminated) receive the whole amount of their subscriptions with 18¼ per Cent. per *Annum Interest* thereon.   By order of the Board,
(Signed)   ——————————, Secretary.

Important to Persons desirous of Purchasing House Property.

£1,000 will be offered for Sale at the *Second* Meeting of the ————— BUILDING AND INVESTMENT SOCIETY, on THURSDAY Evening, the 9th of May, 1850, at half-past 7 o'clock.—*Interest payable by the Borrowers* from 1 to 5 per cent (!).—The whole amount of the purchase-money and law charges advanced by the Society.—No arrears to pay—*Fixed to close in 10 years certain.*—Subscription, 5s. per Share per Month.

From the great number of Shares taken at the First Meeting, this Society will be closed after the 3rd Meeting.]

" bers who shall offer the *highest premium* or interest for the
" use thereof. By this plan the great evils, loss and un-
" certainty, attendant upon the rotation and balloting systems,
" are avoided.

" That the premiums or interest shall be the only sum
" payable by the borrowers for the use of the money that
" shall be advanced to them.

" That the premiums bid shall not be deducted from the
" sum to be advanced, but may be paid by equal monthly
" instalments, spread over the remainder of the ten years.

" This will be a very great accommodation to the borrowers,
" and is, in the opinion of the Directors, a great improvement
" upon the old systems, under which the premiums are de-
" ducted from the money to be advanced.

" In order that the members may be guided as to the
" premiums they may safely bid for advances of money, the
" following table is given, showing the amount of interest, to
" which the premiums from £3 to £15 per share will be equal
" for the ten years :—namely,

Premiums, if given during the first year.	Interest ⅌ cent. ⅌ ann.		
£.	s.	d.	£.	s.	d.
3	0	0 Premium for an advance of £30, spread over the 10 years, will be found equal to	1	0	0
4	10	0 ditto	1	10	0
6	0	0 ditto	2	0	0
7	10	0 ditto	2	10	0
9	0	0 ditto	3	0	0
10	10	0 ditto	3	10	0
12	0	0 ditto	4	0	0
13	10	0 ditto	4	10	0
15	0	0 ditto	5	0	0

" While such great benefits are secured to the borrowers, it
" will be seen that those members, who shall allow their sub-
" scriptions to remain as investments, will receive, at the

" expiration of the ten years *certain*, a very large profit,
" amounting, it is calculated, (from the facilities and encou-
" ragement afforded to borrowers, and the certainty of this
" society being always able to lend out its funds at a moderate
" rate of interest), to nearly £40 per share, or £70 for each
" £30 subscribed in the course of the 10 years : thus shewing,
" that persons wishing to invest their small savings, and
" parents desirous of securing a future provision for them-
" selves or their families, will be able to do so in this society
" with a vast deal more advantage and solid benefit, than they
" can by investing their money in life assurances, or depositing
" the same in savings' banks, which do not in any case allow
" more than 3 per cent. per annum interest, or *not above one-
" tenth of the estimated interest or profit to be gained by
" investing money in this society*."

" This plan clearly proves that, although the investers (that
" is to say those members who do not borrow money of the
" society) will probably more than *double* the capital they
" may invest in this society in the 10 years ; the borrowers
" will gain *considerably more* in the same time,"

We have quoted so much of this prospectus, because
the system is one, that contains a variety of complicated
errors common, unfortunately, to a considerable number of
societies.

It has been said, that the investers are promised £70, in
return for 10 annual payments of £3.—This cannot be
practicable unless the subscriptions are invested after the rate
of 18 per cent. yearly interest, continuously realized during
the 10 years, by the constant investment and re-investment of
the society's funds, in loans to borrowers. *(See Appendix)*.

Now the members who borrow, pay more or less, according
as there is competition or not for advances.

If there be no competition, a borrower gives no premium,
and consequently, in obtaining a loan of £30 per share, has

only to pay £3 a year for 10 years, or in other words, he has the loan *without paying any interest for it*.

If there be competition, the *highest* premium he can pay on each £30 share is £15, spread over 10 years: he therefore obtains an advance of £30, for which he has to pay annually £3 subscription, and £1. 10s. 0d. instalment on his premium during 10 years, which is equivalent to paying nearly 8 per cent. rate of interest for the loan.   See Table 10.

So that in the most favourable case the society would experience *annually a deficiency* of 10 per cent. rate of interest.

If the premium or discount, which a borrower allows, be less than £15, the repayments made by him are smaller, and consequently the rate of interest obtained on the average is less than 8 per cent.   Hence, while, on the one hand, this *Improved plan undertakes to guarantee to the investers a profit arising from the accumulations of their subscriptions at* 18 *per cent. compound interest, yet, on the other, it is lending out the money at rates, which never can exceed* 8 *per cent., and in most cases would be considerably less*.

We pass over the other incorrect estimates advanced by the prospectus, respecting the rates of interest, which are said to correspond to the various amounts of premium mentioned, as we conceive enough has been stated to prove the *utter unsoundness* of the plan.

44.—Many other societies exist conducted upon various schemes, which are equally fallacious, and up to the time of the publication of the present edition, announcements such as the following are constantly appearing in the public prints :—

" From the peculiar advantages offered by this society, the " investing members will reap above 20 per cent. interest for " the use of their subscriptions," &c., &c.,

And further on, the same advertisements assert—

" That the borrowers will scarcely pay at the rate of 2 per " cent. interest for their loans."

Again we find—

" It is calculated that those members who allow their sub-
" scriptions to accumulate at compound interest till the close
" of this society, will receive about 25 per cent. annual
" interest for the same, &c., &c. : and from 80 to 100 per cent.
" profit will be obtained by those members, who purchase
" property with the money advanced to them by the society."

Such statements require no comment.

It is not necessary to extend our inquiry into the defects of
other societies, as it is to be hoped that increasing knowledge
on this subject will prevent their formation for the future.
Our object in this place is rather to point out the general
practical objections to the system of terminating societies
altogether, than to rectify misconceptions, which arise from
ignorance. It is, however, worthy of notice, that the tendency
of most new societies is to diminish the rate of contribution
paid by the members, without making any corresponding re-
duction in the value of each share promised at their termina-
tion.   Formerly a more secure principle was adopted, and the
monthly subscriptions required on each share were much
larger.   For instance, in most of the old Liverpool and
Manchester Societies, the shares were fixed at £150, and the
monthly payments at 20s. per share. Hence, many succeeded
in terminating successfully. The modern associations, however,
diminish the monthly subscriptions one half, and yet take
only £30 off the amount of the share to be realised.   In
general the statements put forth at the present day do not
depend upon principles deduced from sound knowledge or
careful reasoning, but seem rather to be the offspring of crude
guesses thrown out at random.   The originators of the multi-
tudinous variety of new and improved plans, promising such
large benefits simultaneously to each of the two classes of
members, who alone constitute these societies, might, with as
much probability of success, devise a game of cards, at which
all who played should rise up winners.   They do not reflect

that, although a fair and reasonable benefit may be secured to
the invester by lending on equitable terms to the borrower,
yet, any extra profit beyond this, which is promised to the
one, can only be obtained at the expense of the other.

45.—By a mistaken interpretation of their rules, much
injustice is occasionally committed. For example, in some
associations the borrowers pay interest at 4 or 5 per cent. on
the amount advanced, pursuant to clauses similar to the
following: *viz.*,

" PAYMENT OF INTEREST.

" 1. That any member having received his or her share or
shares, shall pay interest at £5 per cent. per annum, on the
amount borrowed, by equal monthly payments, such
interest to commence from the time the money is advanced,
or if the security for the same shall not be completed pre-
viously, then from the third month from the time of
purchase, and shall be subject to the same fines as for
subscriptions in arrear."

The obvious equitable interpretation of the preceding is,
that the interest-subscription shall be after the rate of 5 per
cent. on the *whole* sum borrowed, *diminishing*, if the debt
diminish, in just proportion. For example, let the debt be
£100; the borrower's payments would comprise the ordinary
subscription, and £5 a year or 8s. 4d. a month, for interest.
As, however, the principal of his debt is gradually liquidated
in the period of the society's duration, it would not be fair
to require him to keep on paying £5 a year for interest
to the end; inasmuch as, in so doing, he is practically paying
sums in interest, which increase the rate from 5 per cent. up
to 50 per cent. Yet this is perpetrated in many societies.

Section 3.

The leading practical objections to Benefit Building Societies as at present constituted.

46.—Among the objections which apply to the majority of existing societies, there is one which is peculiar to those founded on the terminating principle :—

In consequence of its being intended to close the society in a given number of years, or as soon after as practicable, the opportunity for investment soon ceases, as the members are unwilling to borrow in the later years of its existence, when the period, over which a loan can extend, has become small, and the corresponding rates of repayment much increased.

It is found by experience, and it is indeed a fact, which common sense would suggest, that it is almost impossible to find members who will care to borrow, when the first five or six years of any society's expected duration have elapsed. The monthly repayments upon a loan, which is to be only for a short period, become too large to suit the means of the industrious classes, who are usually the shareholders of a Benefit Building Society; and this difficulty increases to an insurmountable degree in the last years of the proposed term of its existence. For although a man, who borrowed £300 for 14 years in order to purchase a house, might contrive with comparative ease to pay £30 a year in addition to the taxes and ground-rent; yet he would probably be unable to pay 59l. 18s. 0d. a year if the loan were merely for 6 years, or 85l. 12s. 6d. a year if it were only for 4 years, and similarly for other periods.

In ten-years societies the difficulty is still greater, as the terms for loans are much shorter.   This circumstance creates

therefore a cessation of investment, and consequently a loss
of interest, which altogether nullifies the calculations upon the
supposed truth of which the society was founded; for it has
been shewn in the general remarks upon compound interest
contained in Chapter 2, that, even supposing the rates of a
society accurately calculated, they can only prove correct on the
supposition, that there is never any loss of interest on its
funds, or in fact, that all monies received from subscribers
are continuously invested until the end.   Hence this objection,
which becomes greater and greater with the progress of the
society, stands prominent as a vital obstacle.

Some societies of recent formation have attempted to ob-
viate the difficulty by a plan, which, in some measure, would
be successful in preventing this loss of interest, were it not
that it entails another equally important objection relative to
the Expenses of the association.   The plan alluded to consists
in dividing by lot any balance of money existing at a meeting,
where there are no borrowers, among those members who have
not yet received advances on their shares; so as to compel them
at once to withdraw from the society, as far as such shares are
concerned; the amount paid on this forced withdrawal of each
share, being regulated by its value at the time of withdrawal,
according to the rules by which all the members are severally
and collectively governed.

Such a measure, though necessary, adds to the general
difficulties in the principle of termination, since it tends
month by month, in a rate rapidly increasing, to diminish the
number of the members of the association; for in each suc-
cessive month of the last years of its expected existence, the
number of members, who desire to borrow, becomes less, and
in the absence of applications for advances, the number of
investers, or non-borrowers, who must be paid off, increases.
Thus the society, which might otherwise have succeeded,
rapidly sinks in importance, and *the expenses and any defi-
ciency of funds* which may afterwards be discovered, instead

of being spread over a large body, have to be borne by the few, who are unlucky enough to remain to the end.

47.—The following objections for consideration, although common to many societies, whether terminating or permanent, are nevertheless increased and aggravated when the institution is of a transitory character.

First.—*The interest is usually calculated as likely to be realized monthly, whereas such is practically not the case.*

It is not possible but that, from the very beginning of any society's existence, some portion of its funds will at various periods remain unemployed for a time. Sometimes this takes place, because the balance in hand is not large enough to meet the purpose of any borrower, particularly in the first year or two, when the subscribers are too few in numbers to raise quickly enough an adequate sum. Sometimes, on the contrary, when the amount required by the borrowers, whose names are entered, has been advanced, there remains a sum which is not applied for.

Now it has been stated, that the interest is generally calculated as produced monthly, which would require that there should never be even a day lost in investing the whole of the subscriptions collected at each meeting; and since this is practically impossible, it may be laid down as an axiom, that no society can be secure, whose rates of subscription are formed upon such a principle. It is not remembered, that although it is desirable to receive the subscriptions monthly, yet it is not safe to act upon the hypothesis of their being immediately reinvested, or of monthly interest being actually obtained, as such a mode of calculation reduces the Rate of repayment, which it is necessary to charge to a borrower for a given loan. It is one thing to receive the repayments monthly, and another to assume in the calculations, that they will be as frequently reproductive of interest. In other words, the safety of any society depends upon the managers always

having sufficient time, before the arrival of each of the cal-
culated periods for reinvestment, upon which the tables are
based, to complete the necessary details for preventing loss of
interest, by investing all monies which are not required for
the immediate purposes of management. This can only be
secured satisfactorily, by making the epochs of monetary re-
payment in each year more frequent than the periods, at
which allowance for interest is credited to the borrower in
the fundamental calculations. Hence, it would be safer, at all
events, if the interest were supposed paid quarterly ; but, in
order to remove any possible contingency from this source, we
consider that, in all calculations, which form the basis of
the subscriptions, the interest should be assumed as only
realized annually and at the *end* of each year. The difference
between this assumption and the actual result would be in
favour of the society, and useful for contingencies.

48.—Whilst we are upon this subject, it is important to direct
attention to another circumstance, which affects the accumula-
tions expected to be realized from interest. In many societies
there exists a practice of borrowing money from their bankers,
for the temporary purpose of accommodating members sooner
with advances. This is often done at the commencement of
the association, and occasionally later in the course of its
existence. If the sum charged by the bankers for the accom-
modation do not exceed the interest, which forms the basis of
the society, and, as such, is expected to be paid by the
borrowing members, then the transaction is safe and highly
advantageous. But if the bankers charge 8 or $8\frac{1}{2}$ per cent.
as at times has been the case, while the society only receives
5 or 6 per cent. from its borrowers, then a loss must be
experienced. Those societies, in which the Advance-repay-
ments are founded upon a 5 per cent. rate of interest, ought
to pay particular attention to this consideration. If money
be borrowed from extraneous sources, and it is undoubtedly

often necessary to do so, in order to carry on and facilitate operations, let care be taken that those members, who are benefited by the accommodation, pay the extra charge.

49.—Secondly.—*The loss from the expenses of management.*

Whether the amount of monthly subscriptions from the members of a Benefit Building society be theoretically sufficient or not; yet the promised results cannot be realized, in consequence of the annual loss caused by the Expenses, which are not adequately provided for.

In Section 1 we have seen that, in most societies founded upon principles theoretically accurate, the present value of each share at the time of an advance, or its amount at the *end* of the specified number of years, are respectively equivalent to the accumulation arising from the receipt and immediate reinvestment of the monthly subscriptions thereon. It follows, that the money so received cannot be appropriated to other purposes without loss; hence the expenses of starting and giving publicity to a Building society, and those also of its subsequent management, to however small a compass they are reduced, must be defrayed out of some other source of revenue than the share subscriptions.

If the initial and subsequent annual Expenses could be accurately estimated beforehand, there would be no difficulty in determining what payment per share ought to be contributed by each member to meet the necessary outlay. In the majority of cases, however, the probable amount of the expenses is neither known nor provided for, although they are frequently asserted to be covered by the entrance fees, fines for non-payment of subscriptions when due, and a few other trifling sources of profit, which the society may expect to receive. To a certain extent this is correct, but in no case are these receipts sufficient to defray more than a very small proportion of the expenses. In the first place it must be re-

membered that a fine is not wholly profit: a fine is inflicted at so much a month per share, for neglect of regularity in paying the monthly subscriptions when due, and, therefore, is partly requisite to supply the loss of interest, which the society would otherwise experience. And, even assuming that the preliminary expenses could be covered by the money received from entrance fees, which an inspection of the various Balance sheets would shew to be very seldom the case, yet the *annual* charges of management, consisting of office rent, salaries, &c., must be provided for.

It can be shewn by an example taken at random, how such an annual outlay would affect the ultimate status of a Terminating association. Take a 14-years Building society, whose shares are £120, produced by a monthly subscription of 10*s.* or £6 a year, and the annual expenses of which we will suppose to amount to £72 a year. Now £72 is 12 times £6, or equal to the amount of subscription received yearly on 12 shares, and, therefore, by the fundamental statements of the society, is calculated as equivalent to 12 times £120, or £1440; consequently the annual charges must produce a deficiency of £1440 in the society's funds at the epoch of its originally expected termination. This instance will apply in principle to all societies, whether of 10, 12, or 14 years' duration, unless, independently of the monthly share subscriptions, they have adequately provided for the annual expenditure. An inspection of many of the annual Balance sheets will, moreover, shew that, when the different expenses in the course of the year are added together, they will frequently be found to average from £120 to £150 a year, which, on the same principle of calculation as that made use of above, must create, even from this source alone, a deficiency in the society's funds, at the end, of from £2400 to £3000.

50.—Thirdly.—*There is no provision made in the theoretical*

calculations for losses, which may be experienced through bad investments, &c.

In all mercantile transactions of this kind losses must occasionally happen; and, whether they arise from wilful neglect or carelessness, or other causes, such as deterioration in the value of property, they combine to produce an effect for which no provision is made in determining the subscriptions to be paid by members. Although, at the commencement of a Benefit Building society, it would of course be impossible to foresee the individual event, or even the nature of the events, which are likely to be productive of loss, yet it is a matter of experience that losses will occur, entailing a deficiency in the society's funds at the time of its promised termination, which, with the combination of the other defects already mentioned, will, in the case of a Terminating society, tend to cause a *prolongation of its existence* beyond the originally intended or stated period.* By such means the duration of the subscriptions of both investers and borrowers is unavoidably extended, and they suffer in consequence a decided loss.

In the first clause of the Benefit Building Society Act, it is provided that the duration of a society, and the consequent continuance of the Borrower's repayments, shall depend, not on any number of years specified in the prospectus, but, upon the actual completion of the full amount of the *unadvanced* shares; so that a society may not close at the end of the expected term of its existence, unless the funds collected at the *last* monthly meeting shall be sufficient to give to each of the Non-borrowing members a division per share equal to its originally stated amount. If there be a deficiency, from whatever cause it may proceed, then must all the members, borrowers as well as non-borrowers, continue their subscrip-

* [A London Society, of which the proposed duration was 10 years, has lately decided that, from the extent of its losses by advances on insufficient or bad security, its term must be extended to 16 years.]

tions for such additional number of months as may be necessary, unless they should all unanimously agree to dissolve the society and put up with the loss sustained.

We are aware, indeed, that, in some of the Terminating societies, certain provisions have been inserted in the rules that, whatever be the position of the society's affairs at the end of the expected time of its duration, the borrowing members shall *not* be required to continue their payments beyond that period, but shall have their deeds returned to them, and their property released from any further claims. Such provisions are nevertheless of no legal avail whatever, and cannot prevent a prolongation of the society, nor in any way protect the borrowers from its consequences. No rule can protect them from a liability for such continuance of monthly subscriptions, as may be deemed necessary for the purpose of making up any deficiency that may exist.

51.—It appears, therefore, that no society can possibly possess, at the end of the originally specified time, sufficient funds to give to each Invester the full amount of his shares, even supposing the rates are accurately calculated, unless:— *Throughout the whole previous duration of the association, there has been no loss sustained, either through bad investments or other causes, or from extraneous expenses (not covered by sufficient extra contributions from each member over and above the receipts from fines, fees, &c.), and also unless no month has ever passed during which any part of the subscriptions has remained unproductive, so that, in other words, no loss of interest has at any time occurred.*

52.—Should there arise a deficiency from any one of these causes and the duration of the society be prolonged, it will be well to consider the effect, which such a result has upon the relative interests of the Investers and Borrowers respectively. An extension of its existence for 3 or 4 years in reality causes the borrowers to pay much more for the loans they have obtained,

than they imagined would be the case, when they entered into their engagements towards the society.   The interest which they actually pay, instead of being perhaps only 5 or 7 per cent., becomes thereby increased to more than 10 per cent. An invester, also, not only does *not* receive the promised amount at the expected time, respecting which he may very likely have made pecuniary arrangements, but he is also compelled to continue his own subscriptions ; by which means the benefit, that he derives from his shares, is very materially diminished.

As, however, the Investers have still the option of withdrawing from the society, if they are willing to accept the amount of dividend per share that the funds admit of, and thus mutually agree to dissolve the association, it will often be a question worthy of their serious consideration, whether it will not be better to endeavour to make an arrangement with the existing borrowing members, that the latter should at once contribute something towards the deficiency, to be determined by calculation, and then that all the members, both investers and borrowers, should agree to dissolve the society.   Experience has shewn that this plan will really be the most advantageous to the two classes of members, inasmuch as the investers will be prepared, in general, to put up with some loss, or, in other words, to release the borrowers upon liberal terms, in order to receive at once some money for their shares, however the amount may fall short of what they expected.

53.—* We have said that the Borrowers have not to make good the whole deficiency in the society's funds, but only their proportionate amounts, considered relatively to the otherwise necessary continuation of subscriptions from both parties.

* [Since the publication of the first Edition, several old societies have remodelled their Rules and Rates of Subscription, and have been converted into *permanent* institutions upon a simple plan founded upon the principles contained in the following chapter. It is also highly gratifying to state, that but very few *terminating* societies have been lately formed.]

Hence, it will be advisable, in order to avoid an unintentional act of injustice to either, that the members should see that the proper quota to be contributed is determined by accurate calculation.   In the Appendix we have given a specimen of the mode of investigation to be adopted.

54.—In perusing these remarks respecting the majority of the existing societies, and in comparing the liberal promises contained in their prospectuses with the periodic reports of the position of their affairs, we believe the impartial reader can arrive but at one conclusion.   * He will become satisfied :— That not one in twenty, or even in a greater number, can possibly realize for its members, whether investers or borrowers, the advantageous results originally promised; and that, at the various epochs of their expected termination, there will be found such a deficiency of money as must deprive the possessors of unadvanced shares of a considerable portion of the accumulation, which they had been led to expect;—That in many cases, so far from receiving £120 per share, they will obtain less than £75, and that, if not disposed to accept whatever sum may be then offered to them, they will be forced to continue their subscriptions for several years beyond the specified time ;—That these unfortunate results have arisen in great measure from a lack of proper knowledge and experience in the originators of these institutions,— a circumstance that does not always escape the notice of the industrious classes, and tends largely to diminish their faith in the real advantages of prudent and economical habits ;—

*[Our readers should beware how they rely too hastily upon statements, which they may hear, of individual societies having terminated successfully.   They will find, upon investigation, like the Author, that some questionable expedient has been adopted, towards the last years of its intended existence, by which an apparently prosperous end has been attained.   For example, it may be mentioned that in the North of England a society terminated lately with the promised results, through the members paying for the last few years double the original subscriptions upon their shares.   The public were then informed of the fact, that the shares had been realized:—The shareholders alone could have stated, what they had paid for the same.]

Lastly, that strong legislative measures are necessary for the due regulation both of the legal establishment of a Benefit Building society, and also of the system of its financial operations; and that some supervision should be exercised by truly competent persons, not only at the commencement of the society's existence, but subsequently, from time to time, throughout its progress.

CHAPTER IV.

ON PERMANENT BENEFIT BUILDING SOCIETIES.

ART. 55.—Having reviewed some of the leading objections
to the plan of *terminating* societies, which propose to close at
the expiration of a fixed number of years, or as soon after as
the stated amount of the unadvanced shares is realised, we
will now proceed to examine in detail the various superior
features of the *permanent* system.

To enable an institution of this kind to conduct its opera-
tions successfully, as regards the profit, which is expected by
the investing members, at the same time that the borrowers
are freed from unjust responsibilities, it is proper, not only
that the rates of subscription and repayment should depend
upon a sound basis of mathematical reasoning ; but, also, that
the general system of the society's practical operations should
be, as much as possible, clear from those defects, which either
prevent the realisation of the expected interest within the
calculated time, or produce injury and personal inconvenience
to the members. It is essential, that due provision should be
made for the current expenses and liabilities, and that they
should no longer be left dependent upon the uncertain
receipts from fines or fees. The relative position of the two
classes of members should also be more equitably considered,
so that the profits of the one may not be increased by taking
an unfair advantage of the other; and the period of the
duration of a mortgage should be rendered definite, in order
that the claim of the society upon a borrower may at all
times be subject to equitable adjustment, in case of his being
subsequently desirous of redeeming his property ; since it

is evident that any uncertainty, respecting the duration and amount of a debt, tends materially to depreciate the saleable value of the security held for it.

As, moreover, it is not easy to form an opinion of the possible fluctuations in the value of money, when it is involved in transactions extending over a lengthened number of years, attention must be given to a suitable Reserve being annually made upon the society's profits to form a protective fund against future contingencies.   Experience daily shews, that Benefit Building Societies, from the peculiar nature of their transactions, are exposed to losses, which cannot be averted by the most careful or intelligent management.   By subjecting, however, the chance of their advent, to the laws of ' Average,' and by providing a resource, whence any deficiency may be at once made good, these institutions can be rendered, on the whole, as secure and as advantageous mediums for investment, as any other commercial societies in the kingdom.

56.—The Permanent plan, which we have devised, appears to meet these requirements, as it is entirely free from most of the objections peculiar to Terminating societies :—

1st.   The difficulty of finding borrowers, at any time in the course of the existence of a society, is removed.

2dly.   New members may enter in any month without paying up any arrears or increase of entrance fee.   Hence, the scope of the society's action is extended, and the power, resulting from mutual association, of doing good, is greatly augmented, as the number of shareholders increases year by year, and even month by month, instead of di-minishing.

3dly.   The initial and annual expenses can be more equit-ably divided, and spread over a larger number of members.

4thly.   A member may, under reasonable restrictions, withdraw his subscriptions, or effect the redemption of a mortgage, without the delay or expense, that he would experience in a terminating society.

5thly.   The duration of members' subscriptions can be fixed with greater certainty.

57.—The system of a Permanent Building Society, which is most simple in its operations, may be explained as follows:—

The members are separated, as before, into two classes, Investers and Borrowers.

The investers pay a certain monthly subscription during a *fixed* number of years, calculated as sufficient for the realisation of their shares, at the end of which time the amount due is paid to them, and they secede from the association as far as such shares are concerned.   The Investers represent the proprietors of a company.   New members can enter at any time, and commence their subscriptions without paying up any arrears or any increase on the original entrance fee, whereas in terminating societies, the fee on entering is increased, without sufficient reason, year by year, until, from being originally only 2s. 6d., it is in some cases raised to six pounds per share. The duration of a membership is counted from the month of a member's first entrance.   This causes every month a fresh series of members to be added to the society or new shares to be issued, so that, taking an example, if the term of membership were 10 years or 120 months, and 50 new shares on the average were taken up every month, there would, at the end of the first 10 years, be 6000 shares subscribed, supposing always that, if any were withdrawn, the average were kept up by an increase in the new comers.   At the end of the first 120 months, or 10 years, 50 would be paid out, but as new members would come in, the number of subscribers would be undiminished, and month by month afterwards, as successive periods of 120 months were completed, old members would go out and new ones come in.

The Borrowers receive, at the time of obtaining an advance, the full amount of their shares without any deduction beyond a trifling commission, which is withheld as a contribution

towards the expenses and losses ; the loan is secured by a mortgage on the property purchased, and in return they pay, during an *optional fixed* number of years previously agreed upon, a suitable monthly subscription, by which the debt is liquidated with interest. The members, who become borrowers, *at once cease to be investers* in respect of the shares on which they obtain advances, and do not participate in any of the subsequent liabilities or expenses of the society, nor consequently in its profits, which in fact they anticipate by obtaining their loans at a moderate and definite rate. The general liabilities are provided for by taking, as the basis of the calculations, a higher rate of interest for the repayments, than is actually guaranteed to the investers for the realisation of their shares ; that is to say, if the amount of each share held by an invester, which is promised to him at the end of a fixed term of years, be equivalent to the accumulation of his subscriptions at $4\frac{1}{2}$ or 5 per cent. compound interest, the borrowers would nevertheless be charged about $6\frac{1}{2}$ or 7 per cent. This difference of 2 per cent. in the rate of interest obtained is temporarily withheld from the investers, in order to form a management and contingent fund, for the purpose of meeting the expenses and contingencies of loss on the mortgages. The customary commission, which is deducted from the loan, is proportionate to the number of years of its duration, and varies in amount with the local circumstances of the place in which the society is conducted. It is regulated by a table, where the advances are made by Rotation or the Ballot ; but in the case of the Bidding system, it is replaced by the premium bid per share. A borrower must have been previously an invester, but *immediately* after he borrows, he passes over from one class to the other, receiving then whatever amount is *due* to him on his *investing* shares, as arising from his *past* subscriptions, with interest thereon from the date of his first joining up to the time of his obtaining the advance. The repayments of the borrowers are for a fixed term of years, whatever

be the subsequent condition of the society, as it is not rea-
sonable that, when they have once given good and sufficient
security for a loan, they should be expected to share in the
responsibility of future investments.   This is one great im-
provement upon the old system, where the period of the
subscriptions would depend on the future success or non-
success of the association, or upon the contingency of any
loss being sustained by it from other property mortgaged to
other members—so that in many cases the repayments are
extended over several years more than was expected by a
borrower when he first effected his loan.

58.—As regards those members who remain investers, the
system of periodically dividing a Bonus from the profits is
adopted, which has been found so productive of safety and
success to mutual Life Assurance companies.   Instead of
forestalling the society's profits, by reducing the monthly
subscriptions of the investers to such a degree as barely to
leave them sufficient, even theoretically speaking, to produce
by accumulation the amount of the shares, the safer plan
already alluded to is adopted, of keeping the subscriptions
sufficiently high to be theoretically and practically adequate
for the purposes.   Any *surplus* profits, which may arise beyond
the promised amount of the unadvanced shares, are periodi-
cally and proportionately divided among the investers in the
shape of a Profit-Bonus to be paid to them, with the other
sums due on the completion of the subscriptions upon each
share.   The Bonus system thus possesses very great advan-
tages, inasmuch as it preserves to the society the possession
of a reserve fund over which it has power, and whence any
unexpected losses may be met.

59.—The borrowers of course are not entitled to participate
in this Surplus-Bonus, as they have secured the equivalent by
the manner in which they obtained their advances.   This
point appears, since the publication of the first Edition of this
Treatise, to have been misunderstood, and several well-disposed

persons have exclaimed against an apparent disadvantage offered to borrowers by the new system. They should, however, have reflected that the borrower is in all cases, practically, equally well off, since by the very mode in which he obtains his loan, he secures at once the enjoyment of an *immediate* profit, which is still only *prospective* to the Invester. The money in hand is of at least as much advantage to the borrower as the deferred realisation of his shares can be to the subscriber, who has to wait to the end of his membership.

60.—In a permanent institution of this kind there will be little difficulty in obtaining borrowers, for the great objection disappears which is made against terminating societies :—*viz.*, that after a few years of their existence, the duration of a mortgage is too limited, and the loan-repayments too heavy, to suit the means of the class who are usually members. If the society be permanent, a member can at any time become a borrower, and yet have his advance for whatever period is most suited to his means, the amount of monthly payments required being less as the duration of the debt is extended.

61.—Again, since new members may come in at any time without paying up any arrears, the society will, if properly managed, continually receive a fresh accession of strength from new subscribers, and thus generally possess, at each meeting, funds sufficiently large to be capable of being invested without delay; whereas, it has been stated before as one of the difficulties in the old societies, that from their being comparatively confined in their action, the funds collected at a subscription meeting are frequently insufficient to meet the wants of any borrowing member, and are consequently left idle and unproductive of interest for, perhaps, some months, until by subsequent additions they amount to the sum required.

The permanent principle therefore possesses several elements, which tend materially to confirm the calculations founded on the *probability of a continuous realisation of interest.*

62.—It is, however, necessary and proper that a higher rate of interest should be charged, in determining the advance repayments, than the investers would be content to receive in return for the subscriptions contributed by them, in order that some margin may thus be provided for the various contingencies to which these societies are exposed. *These contingencies arise not from the Investers but from the Borrowers.* It is through the loans that losses are likely to be produced, and the borrowers should therefore pay sufficient interest to protect the investers from such casualties. As we have said before, the security offered to Benefit Building societies is one of much tendency to be of an unsound nature, and out of a large number of such investments, a few bad cases will always arise entailing loss. * By charging, however, a sufficiently high rate of interest from the borrowers, the annual receipts from that source may be made large enough, not only to meet the engagements in respect of interest on their subscriptions, which the society has contracted towards the investers, but also to cover any loss arising from bad security or other causes.

In societies formed for the purpose of purchasing or dealing with property, which does not consist of land, in or around London, or other large towns, a very fair plan is to take 7

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* [We have, since the first Edition, met with a similar view of the principle involved, in the well-known *Catechisme de l'Economie Politique*, by the late distinguished J. B. Say, at page 181 of the fourth edition. The substance of his views is as follows: Capital is rendered available, by industrial enterprises, to produce an income under the name of interest. The interest or income from such a source should be separated into two parts. When a sum of money is lent at a much higher rate of interest than that of the public funds, say, at 6 per cent. per annum, only 3½ or 4 per cent. (more or less) can be considered as the payment received from the borrower by way of rent for the hiring of the money. The remainder 2½ or 2 per cent. (more or less) is to cover the extra risk existing in the investment, or is the Premium of Assurance at which the lender (acting as his own Assurer) can incur the chance of loss, to which he is exposed through making his advance upon a security, that is not of the first class.] *(See chapter further on respecting Emigration Societies.)*

per cent. rate of interest as the basis of the loan repayments, since even that rate is sufficiently low to enable a member to purchase a house on comparatively moderate terms, and in consequence of the greater opportunities for other investments, at apparently as high rates of interest, possessed by London residents, which they might consider more secure than house-mortgages, it would be nearly impossible to find lenders, or investers, if a lower rate were charged, as (supposing that the expenses, and losses which might arise, should absorb 2 per cent. off the rate of interest obtained) they would not clear more than 5 per cent. for their money.

63.—*Again; the Expenses, both initial and annual, can be more equitably divided over present and future shareholders.*

First, as regards the initial expenses, instead of their being defrayed by the first series of members, they can be charged as a debt against future as well as present subscribers, and be paid off by a certain fixed temporary deduction from the surplus profits of the society.   The annual expenses will in a similar manner be borne by a much greater number of members, than is the case in associations formed on the terminating principle, with this one peculiar additional advantage, that year by year as the society progresses, until the close of the first period of the duration of the investers' shares, the number of contributors will increase, instead of diminishing. *(See Appendix Sec. 4 for further remarks on the rate of contribution, which it is equitable to require from the members.)*

64.—In permanent societies, any Borrower who may desire it, can, under certain practical restrictions, be permitted *to redeem his mortgage* on much more equitable terms than under the old system.

In a society of limited duration, if a borrower, or his family in case of his death, before the mortgage is cleared off, make application to pay off the remainder of the debt, a much larger sum is exacted, than would be required on a mere theoretical

view of the question, in consequence of the society no longer possessing opportunities of investment for any sum which may be returned on its hands, as the other members are unwilling to borrow, when the loan can only be obtained for a few years. So that a borrower, who wishes to clear off his mortgage before the close of the association, has to pay not only the net value of the remainder of his debt, but also some compensation for the loss of interest, which will be experienced in those years, during which the money thus returned will remain idle and unproductive in the hands of the society. Hence, instances constantly occur of amounts being required in redemption of a mortgage, which would be considered unfair and exorbitant, were it not for the peculiar circumstances of the case.

In a permanent association, on the contrary, as opportunities for investments abound, the directors would be ready to offer fair and reasonable terms for a redemption, in order to increase their power of encouraging the entry of new members by the prospect of an early advance.

65.—On the other hand *the Withdrawal of shares* by Investing members is greatly facilitated.

In terminating societies, persons who may desire to discontinue their membership, cannot do so without much difficulty and delay, because the money they have subscribed is engaged in the society's investments; and as few, if any, new members join after two or three years, the funds received from time to time can only with considerable restriction be paid out on withdrawing shares. Hence, it has been customary to inflict fines, varying from 5s. to £10 per share, on parties withdrawing. *This deduction is severely felt by the poor man, who, when endeavouring to save a few pounds, does not know at what time he may require them; and who from unforeseen

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* [A member, who has given notice to withdraw, should not be made to participate in any loss, which may occur *subsequent* to the date of his notice.]

circumstances may desire to withdraw some portion of his subscriptions, as the only means of freeing himself from, perhaps, temporary difficulties. Yet, if withdrawals were permitted without restriction, a terminating society could never lend out the whole of the sums invested, as it might be called upon at any time to return an inconvenient portion of them. Consequently, in all the old Benefit Building societies, the rules attempt to provide against this difficulty by making it not easy to withdraw shares. Moreover, the societies themselves are injured by applications for withdrawal, which they cannot satisfy, as a feeling of distrust is excited which materially affects their subsequent operations. This inconvenience does not exist in the permanent plan, simply because new members continually enter, and there is always a floating balance sufficient to meet any applications for withdrawal within reasonable limits.

66.—The permanent system, described in the foregoing pages, will best be understood by a few examples taken from the rules of one of the societies, founded upon that principle, which has met with great success :—

" The shares of Investing members are *£100 each, for " which the subscription is

     13s. 0d. a month for 10   years or 120 months.
  or [10s. 0d.   ,, $12\frac{1}{2}$,,   150   ,,
     8s. 4d.   ,,   14   ,,   168   ,,]

" They may, however, take half shares of £50, or quarter " shares of £25 each, if they prefer it. Investing members " can *withdraw* from the society, without fine, at any time *after* " the first year, when the amount of their subscriptions will " be returned, with interest, varying, according to the length " of time the member has subscribed, from 1 per cent. up to

* [In some cases £50, and even £25, would, perhaps, be the preferable amount of each share, as the smaller the sum subscribed, the less the amount of withdrawals.]

" 6 per cent., according to the following table for whole
" shares, and so in proportion for half and quarter shares, *viz.*,

" ⎧ At the end of the first year . . £

Without Profits. ⎨

",, 2 years . . .

",, 3 ,, . . .

",, 4 ,, ...

",, 5 ,, . . .

",, 6 ,, ...

",, 7 ,, . . .

",, 8 ,, . . .

",, 9 ,, . . .

" ⎩ At the last or 10th year" . . . 100   0   0

(With Profits in addition to the £100.")

" Investers may, if they desire it, cease their future pay-
" ments and leave their past subscriptions, as a Deposit
" producing compound interest, to be received back in one
" accumulated sum at the end of the term of their origi-
" nally selected membership." [The table being calculated
by the formula in Section 4 of the Appendix.]

" Parties intending to borrow must, in order to qualify,
" previously become members; and, at the time of borrowing,
" they will be repaid the sum due for the past subscriptions
" on their shares with interest, and then receive, as a loan, the
" full amount of any number of shares they may require,
" without any deduction, beyond a small commission, which
" will be carried to the credit of a management and contin-
" gent fund, to defray expenses, &c.

" Loans, to the extent of £   , will be made to members
" on security of real or leasehold estate, house or land, in any
" part of England, for 5, 7, 10, 12, or 14 years, according as
" they may prefer.

" Example—* A member borrowing £100 on mortgage

* [The mortgage-deed must be for a term certain, as in the case of
annuities secured upon property. It will be different from the ordinary deed
of the Terminating Building Societies.]

" will only be required to make the following repayments,
" including principal and interest, *viz.*—

" If for 5 years £2. 0. 8 monthly or £6. 5. 0 quarterly

,,	7	,,	1. 11. 0	,,	4. 15. 4	,,
,,	10	,,	1. 3. 9	,,	3. 13. 1	,,
,,	12	,,	1. 1. 0	,,	3. 4. 6	,,
,,	14	,,	0. 19. 1	,,	2. 18. 9	,,

The repayments of the borrowers are calculated at 6 or 7
per cent. rate of interest, whether the loan be taken for 5, 7,
10, 12, or 14 years, and, although actually paid monthly
or quarterly, they are regarded in the calculation as made
yearly and at the *end* of each year.   This creates but a slight
augmentation in the amount of the periodic repayments, and
yet tends materially to increase the safety of the basis on
which such a society is founded.

" The amount of commission deducted is what a careful
" examination of the expenses and losses of other similar
" institutions has shewn to be necessary and sufficient." *(See
the Rules in this Treatise.)*

" The *surplus* profits of the society, (over and above the
" promised amount of the unadvanced shares,) will be ascer-
" tained yearly by an Actuary, and be apportioned, *two-thirds*
" to the credit of the investers, to be paid to them as a Bonus
" at the termination of their 10 years membership ; the *other*
" *third* to be carried to the credit of a Permanent guarantee
" fund, formed to meet any loss which may arise.   This pro-
" portion in the division of surplus profits will, however, be
" varied as may be considered advisable, after the expiration
" of the first nine years of the society's existence.

" There will be no loss from bidding.   Should there be
" more applicants for advances than can be supplied at one
" time, priority will be settled by ballot, (or rotation.)

" The receipts arising from the entrance fees, fines, &c., will
" all be carried to the credit of the management and contingent
" fund, out of which the different expenses will be defrayed.

" As an example of the working of this society :—Sup-
" pose a person desires to purchase a house for £300, which
" would return a *net rental* of £30 per annum, and that he
" has been an investing member one year before he applies
" for the advance. He must hold 3 shares to borrow £300;
" and in this example we will suppose that he has paid one
" year's subscriptions on each of the 3 shares.

" By the table of withdrawals he is entitled to 3
" times £7. 16s 0d., or £23 8s. 0d., in return for his past
" subscriptions. This sum he receives, at once, if he desire
" it, with the £300, and, ceasing to be an Invester, he
" borrows the £300 on the terms of the table of repay-
" ments (page 63) for Loans, for which only he gives
" security.

" If he effect this Loan for 10 years, his re-payments,
" including principal and interest, will be, £3. 11s. 3d.
" a month or annually £42 15   0
" Multiplied by 10 years   10

" Making the total re-payments .   .   £427 10   0
" Deduct 10 years' rent (paid or received) £300   0   0

" Leaving the cost, as far as the Benefit
" Building society is concerned, .   £127 10   0
" For which sum the member has thus secured to his family
" a house, free of rent for the remainder of its lease.   The
" above example is for 10 years.   The purchase, however,
" may be effected by smaller annual payments, if the Loan
" be taken out for 12 or 14 years."

" The deduction for commission, and the law expenses, must
" be provided for from the £23. 8s. or other private source.
" They of course add to the expenses of the purchase, but *it*

" *should be remembered that the payments of the borrowers* can in
" no way be *increased* or *extended* beyond the *specified period*
" for which the loan is taken, as is the case in the *old societies*.

" Taking an example from one of them whose shares are
" £120, upon which, in the first year, a borrower would re-
" ceive only about £55 in cash, and occasionally much less, he
" would be required to pay 14s. per month per share, or
" 8l. 8s. 0d. per annum, until the close of the society, which
" is more likely to extend to 14, or even 16 years, than to
" terminate in 10 years; but, confining the question to 10
" years, in order to obtain a loan for £300, he would have to
" pay a subscription upon five and a half shares, amounting
" to 46l. 4s. 0d. a-year; whereas, in this society, it would
" cost only 42l. 15s. 0d."

67.—In the permanent plan just described, the period of
the Investers' subscriptions may be 10, 12, or 14 years, or
even longer or shorter without affecting the principle.
Either would answer equally well, and the result would
be the same to an Invester whatever term were adopted,
if the basis of the subscriptions were upon the same rate of
interest. We should recommend, however, that to avoid
complication, in no society should the investers have more
than one or two periods for the realisation of the unadvanced
shares, and their monthly subscriptions should not be less
than what would be required to produce them by accumula-
tion in the stated time, at $4\frac{1}{2}$ or 5 per cent. compound yearly
interest. Although it is not possible, a priori, to estimate the
amount of *surplus* profit, which will remain at the end of
each period, when the expenses and any losses that may
occur have been provided for, yet it is reasonable to ex-
pect, that if the society be carefully managed, each invester
will receive a Bonus in addition to the originally promised
amount of his share. What that Bonus will be must depend
on the success of the association, and every member will,

therefore, find it to his advantage to add his individual efforts in promoting its prosperity. It will be satisfactory to reflect, that the Management and Contingent Fund will be amply adequate for its purpose, since it will include not only the entrance fees, fines, and commission deducted from the loans at the time of an advance, but, moreover, a fluctuating reserve on each £100 share, arising from the circumstance, that the annual subscriptions paid by an investing member, *viz.*, 13*s.* a month or 7*l.* 16*s.* 0*d.* a year, are invested at 7 per cent. compound interest, and in the case of its being realised monthly, the reserve in 10 years would be as high as £11 per share.—*(See Section IV. Appendix.)*

68.—We will conclude this Chapter by suggesting an improvement in the pecuniary position of the Borrowers, by which greater facilities will be afforded to them to realise benefit from Advances. It is well known, that, for the first year after his purchase, a borrower is, in most cases, scarcely able to complete the necessary arrangements connected with the furnishing his house, &c.; and he experiences some difficulty in providing for the increased payments, which begin at the end of a month from the time of his obtaining a loan. The original object of Benefit Building societies, *viz.*, to enable the industrious poor to become possessors of their homes, would be accomplished, with greater certainty and less inconvenience to the parties concerned, if the monthly repayments upon advances did not begin for a year after the same had been granted. The borrower would thus have time to look about him and to settle comfortably in his purchase; and the society would merely have the repayments deferred for one year, or for whatever other time might be agreed upon. It is true, however, that for the association to be properly protected, collateral security, personal or otherwise, should, perhaps, be required during the time which is allowed before the repayments commence. In the Appendix the formula is given for the rate of contribution suitable for a loan so granted.

CHAPTER V.

THE PRACTICAL MANAGEMENT OF A BENEFIT BUILDING SOCIETY.

ART. 69.—After recommending the adoption of the Permanent instead of the Terminating principle, in the formation of future Benefit Building societies, it may not be out of place to add a few remarks, relative to their subsequent practical management, some of which also apply to the other institutions considered in this Treatise.

At the commencement, great care ought to be exercised in the judicious selection of suitable persons as officers. The most important of these are undoubtedly the *Solicitor* and *Surveyor*, from their influence, for good or evil, on the operations of the society; for it is upon their testimony respecting the soundness and adequacy of the security offered for an investment, that its safety and prosperity entirely depend.

When a member is desirous of purchasing a house, or other similar property, he makes application to the directors, who instruct the surveyor to examine and report on the nature, position, and value of the proposed purchase. If these be satisfactory, they then direct the solicitor to examine into the right of sale or title which the seller possesses. Should this also prove unexceptionable, the money is advanced for the purchase, its repayment being secured by a mortgage on the property for an agreed term of years. Let us now examine the position of the Benefit Building society with respect to this investment.

If, at some subsequent time, before the mortgage is cleared off, the borrower were to discontinue his payments, the society

would be under the necessity of seizing the property and reselling it, in order to recover the remaining amount yet due to it.   Thence would arise various chances of loss.

It may happen that the locality in which the property is situated may have diminished in public estimation, as is frequently the case with many parts of London and other large towns; or the necessary repairs to which any new Purchaser would be exposed, if they have been neglected by the late occupier, might be found too heavy.   Perhaps by a wilful mis-statement or an error in judgment on the part of the surveyor, the house may have been estimated at more than its real value; or, lastly, some defect in the original title may be discovered.   In any one of these cases an attempt to resell the property would occasion loss.

70.—Now these contingencies may in a great measure be averted by the selection of careful and respectable officers.

1st.   As regards the SOLICITOR, who examines the title to the property.   This branch of law business, which is technically termed " conveyancing," is one of great intricacy and difficulty, and requires peculiar skill and experience in the person who undertakes it.   The title-deeds to property are often much involved, or present flaws and deficiencies, which can only be detected by the most searching and patient inquiry.   On the other hand the prosperity of a Building society, the security of its investing members during the continuance of a mortgage, and the subsequent undisturbed enjoyment by the borrower of the property purchased, depend solely and entirely upon the validity of these titles, and the correct appreciation of the property which they represent.

For these reasons, the election of a competent solicitor is one of the most important duties which belong to the directors of the society.

The person chosen should possess both experience and talent; he should be a man of integrity and firm principle, incapable alike of being influenced by motives of interest or

feelings of private friendship; and, besides these indispensable qualifications, he should, if possible, in common with the other officers of the society, be possessed of a good connection.

71.—To secure the services of a person thus qualified, an adequate and liberal remuneration must be offered, instead of the insufficient fees, which have hitherto been often tendered by Building societies to their solicitors. The recompense should be proportionate not only to the actual value of the work done, but also to the heavy responsibility attached to the office which they hold; for, should the society sustain any loss through the inaptitude or carelessness of its solicitor, he is legally bound to make good the deficiency. An example of this is reported in *The Times* newspaper of the 12th of April 1842, containing a trial at the Liverpool Assizes, of an action brought by the Trustees of a Benefit Building society against the solicitors employed in preparing the mortgage deed to the society, for a sum of £1,350 lent to a shareholder. It appeared that the property intended to be mortgaged was freehold, and that the solicitors had, by some oversight, omitted to obtain the assignment of an " attendant term ;" by which means, when it became necessary to proceed to a sale of the property, in consequence of the non-payment of the subscriptions due from the shareholder, it was found that the mortgage was useless for that purpose. The society, therefore, brought their action against the solicitors to recover the money, which had been advanced on the faith of their taking a proper security. The jury gave a verdict for the society (the plaintiffs) for £1,350. The counsel for the Building society, in his address to the jury, stated, in reference to the profession of a solicitor, that—" No profession was of more importance to society; none exercised a wider influence. Every man's property was at their mercy; and on their skill and integrity every one relied."

72.—Besides the necessity of offering an ample remuneration to the solicitor of a Building society, it is also essential

that the amount of his fees, whatever it be, should be fixed
before hand, at the time of his election to the office.

73.—2ndly.   The SURVEYOR of the society stands next in
importance to the solicitor, his duties being attended with
great difficulties, and considerable experience and judgment
being requisite to enable him to form anything approaching
to an accurate estimate of the pecuniary value of property.

This value will depend on several varying conditions.   The
tenure by which the property is held may be freehold, copy-
hold, or leasehold; in the latter case the number of years yet
unexpired in the lease must be taken into consideration.   The
neighbourhood in which the property is situated may be
likely to rise or fall in public opinion.   Any estimate, calcu-
lated on the amount of rent actually paid, is little to be
trusted, as attempts are not unfrequently made to mislead
the surveyor, by letting the property at a nominal rent much
larger than is actually paid for it.

The surveyor, therefore, must not only be able to estimate
the materials and cost of erection, but he must be well ac-
quainted with the locality in which he is employed, and he
must have sufficient experience to enable him to detect the
artifices, by which the vendors of property endeavour to
exaggerate its value.

The false estimates, which are sometimes productive of so
much loss to Building societies, are not always the fruits of
incapacity or inexperience.   Cases have occurred of compacts
between the surveyor and the vendor or the purchaser of pro-
perty, or even some officer of the society, to share between
themselves the profits of an unfair valuation.

To guard against the possibility of such fraudulent practices
as these, a man of high moral integrity should be chosen;
and he should, as well as the solicitor, be liberally remu-
nerated for his services.

74.—Several expedients have been adopted, with the view

of obtaining a check on the estimates of the surveyors of Benefit Building societies. It has been recommended that they should be paid out of the ordinary funds of the society, instead of by the borrowing members individually, so as to destroy any reciprocity of action or feeling between them and the mortgagors of property. Some societies appoint a survey committee to act as a check between the surveyor and purchaser, and a regulation has been proposed to prevent any subsequent transfer of property, from a member to the surveyor, or to any individual of the survey committee. All these may be useful as auxiliary measures, but the necessity for them will be much diminished by a previous examination into the character of the person employed.

75.—3rdly. The MANAGER.—We have placed the Solicitor and the Surveyor of a society first in importance on the list of its officers, because we believe that, provided they are unexceptionable, and the manager be an honest, intelligent, and active man, little more is wanting to carry on with advantage an institution formed on a correct basis as regards its rates of subscription. It is, however, essential that any person proposed as a manager should be thoroughly acquainted with the fundamental principles of compound interest, and the practice of tables relating thereto. Much mischief and inequitable dealing has occurred in several of the existing societies, from the ignorance of their managers on that subject; and it were well if some regulation were enforced, requiring that every person, who intends to become the manager of an association in which the savings of the poor are engaged, should first obtain from competent persons a certificate of his qualifications for the office. Since not a little depends on the zeal and attention with which the manager performs his duties, it is but reasonable that he should be paid as his exertions demand. Experience has long shewn that it is a sorry and false economy, not to give an adequate remuneration to men, who superintend the affairs of important institutions.

76.— One duty of the manager must specially be mentioned. He should make himself perfectly master of the Rules of the society, and the bearing of each clause upon the various matters of business, which he will have to submit, from time to time, to the Board of Directors at their periodic meetings. It cannot be expected that the Trustees or Directors should be as cognizant as their deputy of the practical effect of regulations, which they only meet at intervals to carry out; the responsibility therefore rests, very properly, on the manager; and he should be aware of the duties of his office, otherwise his society may fall into those positions of difficulty and even litigation, from the influence of which many of the older institutions are now suffering.

77.—4thly. The AUDITORS of the society occupy also very responsible situations. The members entirely rely upon their careful examination, from time to time, of the accounts and balance sheets. Not only is it their duty to see that correct vouchers are produced corresponding to the items of expenses or receipts, but they should examine strictly into the formation of the annual or more frequent balance sheet, purporting to shew the pecuniary position of the society at the time of audit. Upon the faith of the statements contained in these balance sheets, it is customary for the directors of the institution to found their report of its progress. By erroneously placing sums to the credit of profit, which are not such in reality, subsequent loss has been created. [*See the following Chapter.*] For this reason it is of urgent necessity, that the auditors should be careful and experienced persons, well versed in the practice of book-keeping and the calculation of interest.

78.—5thly. The ARBITRATORS.—By the 27th section of the statute 10 Geo. IV., cap. 56, respecting Friendly Societies, which has been extended, in the Act of 1836, to Benefit Building Societies, members of these latter institutions are entitled to demand Arbitrators, by whom all disputes shall

be settled, and whose award is to be final on any matters
referred to them.   If the society do not, within 40 days after
application from a member, who considers himself aggrieved,
appoint such arbitrators to investigate his case, he may submit
the matter to any two justices of the peace, who are empow-
ered to give a decision, by which the society will be bound.

79.—The TRUSTEES of the society, though last on our list,
in reality are the most prominent, if not the most active of its
officers.   We may judge of this, from the fact of their names
being so frequently paraded as evidence to the public of the
general respectability of the association, and from the popular
impression that they are numbered amongst its responsible
officials.   The high and recognized standing of many trustees
leads us to wonder at the readiness with which they accord
their names to uncertain schemes, and at their being so unmind-
ful of the injury caused by such imprudence to the public at
large.   [See Art. 42, page 33.]   To correct this evil, a know-
ledge of the usual duties of their position, we are confident,
alone is necessary.   A slight degree of watchfulness, exercised
in a properly constituted association, will protect them from
sharing in the reprehension that otherwise would justly be
their award.   As trustees of the society they should insist
upon a strict adherence to the Rules established for its govern-
ment, and also * upon security being given by those officers,
who act as recipients of the members' money.

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* [Benefit Building Societies, we are told in this work, which may be con-
sidered the grammar of the system, are mainly intended for the benefit of
persons of very moderate means; and yet their cash transactions are not upon the
footing of that public respectability, which gives security, as for instance, in a
bank.   This is the first point to be considered; for even the wild miscalcula-
tions pointed out in some Terminating Societies will merely involve partial
loss, or carry on their duration beyond the period specified.   There must be
security for the intromissions of those who are in any way concerned in
handling the money of the company, or the wisdom with which the plan may
be conceived will be no guarantee against ruinous loss. [*Chambers's Edinburgh
Journal—Extract from Review of First Edition.*]

80.—Turning from the officers of the society to the details of its practical working, we shall next examine several points respecting which there is considerable difference of opinion, even among persons who are most experienced in building society transactions.

With reference to the mode of granting advances to members, when there are applications for loans exceeding the amount of money which can be lent, three plans exist; *viz.*: either by *Bidding*, *Rotation* (that is seniority on the list of applicants), or by *Ballot*. The two first appear to present more objections than the third, although it is extremely difficult to decide, what system can be adopted as likely to be entirely free from inconvenience.

81.—The plan of determining by *Bidding* who is to have the preference for an advance, consists in putting the sum proposed to be lent, up to auction among the members, and in finally allotting it to that person who offers the highest discount for it. This may be explained by an example :—In a 10 years society, suppose there is a certain sum ready to be advanced. The chairman puts up, say, one share of £120, and enquires what discount will be allowed for it. The members present hand in written biddings to him, and he declares the highest discount offered; upon which the bidding is commenced a second time and the result is again declared; and, finally, a third trial is made, and the advance is allotted to that member who has offered the largest discount. By this plan, members who had no intention to borrow, have had the power of raising the discount offered, by bidding during the first and second trials and abstaining the third time; the profits derived by the non-borrowers increasing with the magnitude of the discount obtained. An attempt has been made to remove this objection by causing the biddings to be made by word of mouth, as at a public auction, and by only allowing one trial. The system of bidding, however, may still cause borrowing members to obtain advances on most unequitable terms,

unless a limit be placed to the price, which they can offer. Cases continually occur, where discounts, for £120 shares, are given as high as £70 and even £80 in the first year.   By this means the borrower receives only £50, or even £40, at the beginning, in lieu of £120, the full amount of his share at the end of the society.   And, as he has to pay 14s. a month for 10 years, or 8l. 8s. 0d. a year, his advance costs him considerably over 10 per cent. rate of interest.

82.—It is proper to state, that in the country there exist many associations in which an error of the opposite extreme is committed, through a desire to make the effect of bidding less onerous upon the Borrower.   We allude to the cases where the premium to be given is limited to a small per centage on each share, and the Borrower is allowed to pay it in instalments over a period of years.   This is disadvantageous, as it delays the realisation of profit, which the society would otherwise experience, and does not prevent the member from still imagining that he is paying considerably for his loan. There is no doubt that it is expedient, for this and other reasons, to deduct the premium at once from the amount of the share advanced.

83.—Between the Rotation or Seniority system, and Balloting, it is difficult to make a choice.   By the first a member puts his name down on the list of applicants, and waits his turn for an advance.   If the society has been some months in existence, when he joins or wishes to borrow, he may have to wait a considerable time before he obtains the loan he desires.

84.—By the *Balloting* plan, the names of all the applicants are placed together in a ballot-box, and one is drawn out by lot, to whom preference is given.   To this last arrangement the modern societies seem to incline, because, without the enormous losses consequent on the *Bidding* system, and the delay certain to attend that by *Rotation*, each of the borrowing members individually has a chance of being fortunate enough to obtain the first right to an advance.

As the names are drawn out of the ballot-box a list is formed in the order of which the loans are to be granted. If there be not money enough to suit all the applicants at once, those members whose names remain on the list have preference at the next advance before any subsequent ballot, provided they have been six months in the society.

85.—It has been lately imagined that the system of Balloting is not legal, inasmuch as it might be considered a species of lottery. Such an impression is entirely without foundation, since the ballot is merely introduced in a permanent Building Society for the simple purpose of collecting for an individual preference the names of the members, who desire to become borrowers and receive advances, for which each and all have to pay after the same rate of subscription and interest; no favour in respect of repayment being obtained by any. The ordinary lotteries were very properly prohibited from very different motives, because they encouraged a system of gambling, by which one man was made rich, while his less fortunate rivals became impoverished. No analogy exists between the two cases.

86.—If the Bidding or Rotation plan be preferred, there would be found no difficulty in applying either to a permanent Building Society, but a clause should be introduced to obviate too great improvidence of competing borrowers in the former case, or the disheartening delay of the latter system.

87.—In *the general conduct* of the society it ought to be borne in mind, that, at its commencement, a liberal yet careful outlay is requisite, to give due publicity to its principles in the districts over which its operations are proposed to extend. The preliminary expenses may perhaps be large in amount, but where they have been judiciously incurred, they are sure to be amply repaid by the future extent and importance of the institution. In order to effect legitimately and advantageously the main object of Benefit Building societies, care should be taken that the personal interests of no individual member are sacrificed by the adoption of any unjust regula-

tions, which may have been introduced for the special advantage of another. As the chief aim is to provide a home for those, who otherwise might not be in circumstances to obtain it, the amount of available funds during each year should be so apportioned as to supply the greatest possible number with advances. Where a member has pecuniary means of his own, he ought readily to apply it towards part of his purchase, so that his less fortunate neighbour may participate to the fullest extent in the assistance which the society can afford him.

Again, there is in general less spirit of speculation on the part of a borrower, who intends to occupy the house himself which he desires to buy, and it is found by experience that more substantial property is offered for security in such cases.

88.—It is desirable that no meeting of the society should ever be held at any tavern or public house. The members may save much money by the adoption of this rule. They may do more : they may deliver themselves from the temptation to form habits of intemperance and useless expenditure, which, to view them in no worse light, well nigh counterbalance all the advantages to be derived from these institutions.

89.—*The Rules* should be framed by persons well versed in the principles and practice of Benefit Building Societies, so that the advantages of both sound and new features may be secured. All such provisions, as experience has proved to be productive of loss or inconvenience, must be excluded. The set of rules in this work are applicable to the proposed permanent plan, which we have prepared of a Building society, and may be adapted to the circumstances of particular localities. They have been carefully modified in this edition by the results of uninterrupted experience, and by valuable suggestions communicated by the certifying Barrister; and we recommend them as providing a sound basis for any society, although we are far from believing, that they should be adopted, without modification, as fitted to every part of the country. [*See Chapter VII.*]

90.—The promoters of new societies should carefully abstain from engrafting corrections upon the draft rules in question, which their inexperience may prevent them from perceiving, might have the effect of utterly destroying the connected link of principles by which the various clauses hinge upon each other. That this caution is not unnecessary, we may mention, by way of anecdote, that one of the most flourishing societies at present in Middlesex, had to go through the expensive operation of a revision and fresh registration of its clauses, after a great number of copies of its prospectuses and rules had been printed ready for circulation. This arose from the promoters having adopted the general characteristics of the set of rules given in the first edition, upon which they had made such fanciful alterations, that the system in their hands became a chapter of inconsistency; and they were put to that expense in retracing their steps, which in great measure might have been obviated by a more legitimate proceeding at first.

91.—In conclusion, a few amendments may be mentioned, which have been the subject of discussion lately, with a view to remedy the uncertainty that is caused by imperfections in the existing Act of Parliament on the points involved.

It is contemplated :—

1st.—That an annual Report of each society, examined by an actuary, should be required to be deposited with the Certifying barrister, so that the members may be protected from errors of mismanagement.

2nd.—That Advances may be made by Building Societies on lands of any tenure whatever, with, or without, personal security collaterally.

3rd.—That Mortgages for advances, exceeding £150, may be specially allowed, so as to remove the doubts, which have been caused by certain observations of the judges in a recent case.—[*See Chapter on the Law of Building Societies.*]

4th.—That the Interest chargeable in the repayments of

borrowers should be limited, so that a check may be put to the usurious terms exacted in many of the old societies.

5th.—That the Repayments of borrowers in societies, established upon the *Terminating* principle, should be invariably limited to the period of years, which they were informed would be requisite, in the prospectus or otherwise, at the time of their taking the advance ;—and, that the Redemption of Mortgages should, in all cases, be estimated with reference to the *present value* of the unliquidated annual repayments, and not with reference to the amount of money secured in the mortgage deed.   The said calculation being submitted, if required by the borrower, to an Actuary of a Life Assurance Office.

6th.—That facilities should be afforded for Converting a Terminating Building Society into a permanent institution, on such a principle as we have recommended throughout this work.

7th.—That a public Registry should be kept of all mortgages from Building Societies; with both the date when the borrower obtained an advance, and when his property is released from mortgage.

8th.—That it should be imperative upon the Directors of all Building Societies, to certify to the Registrar of Friendly Societies, the appointment, resignation, removal, or change of any of the *Trustees;* so as to obviate the difficulties, which, under the present system, may arise, in future years, to the purchasers of property.

9th.—That the directors may have power to borrow money (with the view of expediting the granting of advances,) by Debentures, bearing interest payable half-yearly, preferentially secured upon the shares or property of the Society.

Other points will be found referred to in the legal chapter.

CHAPTER VI.

THE BALANCE SHEETS OF BENEFIT BUILDING SOCIETIES.

ART. 92.—We have mentioned before, that it is customary for all Building societies to produce once a year at least, a balance sheet relative to the state of their pecuniary affairs, which is certified by the auditors as correct, and generally concludes with an estimate of the improvement in the value of the shares, attained by the operations of the preceding year. It is evidently of the greatest importance, that such statements should be accurate, for, if a fictitious amount of profit be declared, the directors, not being aware of the error, are induced to make a corresponding augmentation in the entrance fee, to be required from any one, who may subsequently desire to join the society, and to participate in the supposed profits; the effect of which would be to deter persons from entering, and the scope of the association would be curtailed. The existing members also would conceive a false impression respecting the pecuniary value of their shares; and, if any of them should desire to withdraw from the society before its termination, they would expect, and the directors might be led to pay to them, a premium equivalent to the profit declared, which, if it be overated, must be prejudicial to the interests of the general body of shareholders. Considerable sums are in this manner frequently paid away in the early stages of societies under the name of bonus, which create an irreparable deficiency in the accumulated funds at the epoch of their intended termination. In a variety of cases, which have come before our notice, this mischievous circumstance has occurred, and has been found to have pro-

duced a most unfavourable effect on their financial position.*
Moreover, many members who might be disposed to seek for
advances, imagine that, if so large a profit can be made so
soon, they surely would have to pay too high a rate of interest
for the loan desired. They become consequently dissatisfied,
and do not borrow. The pernicious effect of these erroneous
estimates is, also, not confined to the members of the society,
in which they occur. The false experience and superficial
success, thus created, is quoted by the promoters of new as-
sociations formed on the same scheme, and serves both as an
excuse for copying it with all the errors it may contain, without
further inquiry into its safety or practicability, and also as a
means of attracting members eager to participate in similar
advantages.

93.—Such are the evil consequences attending an inaccurate
statement of the position of a society at the end of any year;
and, yet, in but few instances are the Balance sheets free from
mistakes equally important with those, which are found in
the rules and rates of subscription.

The main source of error consists in the practice of insert-
ing the whole nominal amount of a share, for instance £120,
as having been lent in cash to a borrowing member, when
probably he has only received £55 or £60. This is obviously
incorrect, since it matters not what is the nominal value of
the share, but merely what present sum in money has actually
been advanced upon it, in lieu of the full amount, which the
shareholder would otherwise be entitled to claim at the close
of the society, and for which advance he has to pay a monthly
annuity for a certain number of years.

94.—In general, the only profit, which can be apparent in the
annual statements, is that resulting from the *interest* already

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* The case is similar in its effect to that of a bankrupt tradesman, whose
assets would enable him to pay 15s. in the pound to his creditors, but who, by
giving 20s. to some of them at first, leaves but 10s. in the pound to those who
are paid afterwards.

obtained through investing the subscriptions in loans; and, as such, is merely what was assumed as probable in the fundamental calculations. By the accumulations of interest, year by year, the expected amount of the shares can alone be realised, and the yearly profit thus produced is not a matter of congratulation, as if it were unexpected, but simply the means, by which the suppositions, forming the basis of the society, are rendered true. Hence, if profit at the end of any year be shewn, it cannot be carried to the credit of any but the *investing* or non-borrowing members, who are making their monthly payments in the hope of receiving, at the end of a certain number of years, the promised accumulation of their subscriptions and compound interest thereon, which together are represented by the shares they hold. The borrowers having cancelled their shares by the loans obtained, are not interested in, or entitled to, any portion of the profit or interest realised.

95.—The question, however, may be said to present some difficulty of conviction, as it is frequently objected by Borrowers, that, whereas in a Terminating Society, they are exposed to participate in any losses, which may affect its duration, it would be but fair that they should also share in the pecuniary prosperity of the association. To this, which is but another proof of the evil of high-flown balance sheets, it can be only answered, that, as they have received their shares in advance, and frequently on very favourable terms, they should not afterwards claim a part of the profits, by which alone the non-borrowers can expect to receive an advantage from the society equivalent to that already secured by the borrowers. Moreover, practically, the Borrowers are greatly benefited, in the end, by a *non*-participation in the annual profits; inasmuch, as the more rapidly the unadvanced shares improve in value, or progress towards completion, the sooner will the society arrive at its termination, and the sooner they will be entitled to cease their payments, and to have their deeds returned to them endorsed with the usual receipt.

96.—The plan, hitherto adopted, of making a Balance sheet serve to give an estimate of the profit annually realised on the shares, is productive of the greatest confusion. The terms Dr. and Cr. tend to mislead, if the figures under their head are considered relative to profit or loss experienced. A balance sheet merely supplies information as to the items of money received, and the mode in which such receipts have been disposed of. It can express no opinion, as to whether any advantage or disadvantage has been derived from the way in which the money has been laid out, but simply conveys the facts as they have occurred; and, as such, it is useful and necessary for the protection of the shareholders, because it shews clearly how the pecuniary affairs of the association are managed. In the other point of view it is not of much value, as something more is required, than a mere statement of money received and money spent or invested, to attain a satisfactory knowledge of the position of the society, as regards profit or loss incurred. When the Auditors see under the head of Cr. a heavy item for expenses of management, it does not occur to them that so much money is sunk and gone from the society for ever; the money is accounted for, that is all.

97.—To arrive effectually at the actual value of the shares, an annual valuation of quite a different character should be made, on the same plan as that adopted by Life Assurance companies; by which, not only the sums received, and then invested or spent, or paid out on withdrawal, are considered; but the *present value* also is estimated of the profit to be expected from the advantageous nature of the society's investments in the advances to the borrowers, relatively with the *present value* of its engagements in respect to the shares held by non-borrowers. This is not the business of a mere balance sheet, but must be effected by a correct mathematical calculation, in which the expected duration of the subscriptions, and the interest actually realised, are taken into account.

98.—This distinction has been overlooked by several writers

in periodicals treating of this subject, who, in reviewing
balance sheets, appear to believe, that in order to ascertain
correctly the yearly profit or loss of a society, it is sufficient
to form a profit and loss account, placing on the one side the
various items of receipts from entrance fees, redemption fees,
fines, &c., and on the other side the expenses, and to consider
the balance, whichever it be, profit or loss, as representing
the true value of the shares.   The same rule being applied in-
discriminately to every description of Benefit Building society,
without any reference to the essential consideration, as to
whether the rates of investers' subscriptions or borrowers'
repayments are adequate to the originally promised results.
The members, however, can feel no security, respecting the
actual progress of the society and their own future liabilities,
unless an accurate estimate of the profit and loss experienced
by it be made from time to time ; and we would strongly
impress upon them the necessity of insisting on the production
at the annual meetings, of a complete valuation of the
position of the society to that date, distinct from the ordinary
balance sheet.—[*See Schedule C, page* 93.]

99.—Having mentioned the correct method, which ought
to be adopted, we will proceed to give three specimens of
balance sheets taken at random from a number of similar
reports, for the purpose of shewing how they have hitherto
been prepared ; and to draw attention to the injurious effect
of exaggerated declarations of profit.

100.—It is essential to bear in mind that the mischief, pro-
duced by an erroneous view of the profits of the society, is
even more serious in the earlier stage of its existence than
afterwards, as the loss created by paying away money in the
shape of Bonus to persons withdrawing, is increased with the
number of years yet remaining of the proposed duration of
the association.   For example, suppose £500 be declared by
way of Profit at the end of the 3d year of a 13 years society,
which is realizing an average rate of interest of 7 per cent. ;

since money doubles at 7 per cent. in 10 years, the £500 profit, if paid away when declared, would cause a deficiency of £1000 at the end. As no evil is, generally, without a remedy, so immediate steps may serve to restore the association to its sound position. We would, therefore, urge upon the Directors of all such societies to have their last balance sheet carefully re-adjusted, and the basis of their subsequent statements settled upon correct and intelligible principles. The matter presents comparatively little difficulty, and a downward course of injudicious payment of supposed profit out of capital may be stayed. They would thus be enabled not only to ascertain satisfactorily, from time to time, the precise value of the unadvanced shares, but also to determine the probable duration of the borrowers' mortgage-repayments; a point in itself of vital importance to that responsible class of members.

BALANCE SHEETS.
No. 1.

Extract from the first report of the ——— Society. Shares, £120; monthly subscriptions, 10s. per share (see page 33):—

" The directors have to congratulate the members on the success which has attended the operations of the society during the past year—a success which verifies the correctness of the prospectus issued at its formation.

" The balance sheet shews the superior advantage of building societies over other modes of investment; for if the amount received had been placed—say in a savings' bank, the profit would have been about £43., or 1s. $10\frac{1}{2}d$. per share; while by the legitimate operations of the society, the profit secured has amounted to 2738l. 18s. 8d., or 6l. 0s. $9\frac{1}{2}d$. on the £6 per share paid,—making the present value 12l. 0s. $9\frac{1}{2}d$."

Copy of the balance sheet annexed to the report, given verbatim:—

" *Dr.*

Entrance money	£70	2	6
Subscriptions in advance	1	0	0
Subscriptions for twelve months	2530	10	0
Forfeited shares	2	0	0
Fines	12	1	0
Transfers	9	5	0

Postage	2	11	0						
Interest	21	12	10						
					2649	2	4		
Premiums (or discount) on 33 (£120) shares taken up..	1916	5	0						
Premiums on 12½ shares not taken up, but for which the society has funds...........................	764	10	0						
					2680	15	0		

"*Arrears:*

Subscriptions..	190	10	0				
Fines	17	16	0				
Interest	2	0	0				
Postage	1	1	6				
					211	7	6
					£5541	4	10

"*Cr.*

By formation expenses, including enrolment of rules, and deed boxes	£25	14	2				
Manager's salary	50	0	0				
Postage	5	12	0				
					81	6	2
By mortgaged property	480	0	0				
,, ,, ...	240	0	0				
,, ,, ...	240	0	0				
,, ,, ...	2040	0	0				
,, ,, ...	960	0	0				
					3960	0	0
By arrears of subscription £211 7 6							
Premiums 764 10 0							
Cash at bankers 524 0 10							
Cash in manager's hands.............. 0 0 4							
					1499	18	8
					5459	18	8
					£5541	4	10

To balance in favour of the society
brought down..............................£5459 18 8
Deduct subscriptions on 453½ shares,
at £6 per share....................... 2721 0 0

Net profit realised ....£2738 18 8 = to 6 0 9½ per share

Cash paid 6 0 0

The present value of each share......£12 0 9½ "

The directors, in the above, congratulate the members on the success of the society, which they affirm is manifested by the profit, 6*l*. 0*s*. 9½*d*. per share, realized in one year beyond the £6 year's subscription paid, a result equivalent to more than 100 per cent. interest for the money.

This statement is, however, not correct; and the error arises from the *whole nominal amount* of the 33 *advanced* shares, or £3960, being entered to the Cr. as having been lent on mortgage, whereas in reality the *difference* 2043*l*. 15*s*. 0*d*., (between £3960 and the *discount* or *premiums* 1916*l*. 5*s*. 0*d*. given by the borrowers for the loan) is all that has been advanced. Moreover, the item 764*l*. 10*s*. 0*d*., respecting the shares *not taken* up, but for which premiums have nominally been given, has obviously nothing to do with the business of the *past* year, and ought not to have appeared in the balance sheet.

These considerations change the result :—The following is a copy of the preceding balance sheet, arranged as it *should* be ; *viz.* : by placing only the money *actually received* or due for arrears on the one side, and the money *actually paid* on the other.

" *Dr.*

Entrance money	£70	2	6			
Subscriptions in advance	1	0	0			
Subscriptions for twelve months	2530	10	0			
Forfeited shares	2	0	0			
Fines	12	1	0			
Transfers	9	5	0			
Postage (received from members)	2	11	0			
Interest	21	12	10			
				2649	2	4
" *Arrears :*						
Subscriptions	190	10	0			
Fines	17	16	0			
Interest	2	0	0			
Postage	1	1	6			
				211	7	6
				£2860	9	10

" *Cr.*

By formation expenses, including enrolment of rules, and deed boxes	25	14	2				
Manager's salary	50	0	0				
Postage (year's expense to the society)	5	12	0		81	6	2
By 33 shares taken up, value at £120 each.........	3960	0	0				
Less the discount (or *Premiums*)	1916	5	0				
	2043	15	0				
By arrears of subscription £211 7 6							
Cash at bankers 524 0 10							
Cash in manager's hands.............. 0 0 4	735	8	8		2779	3	8
					£2860	9	10

To balance in favour of the society brought down £2779	3	8
Deduct one year's subscriptions on 453½ shares, at £6 per share, and the £1 in advance.. 2722	0	0
Difference...................................£ 57	3	8"

which, divided among the number of investers' shares, or
those which have *not* been advanced, will give the dividend
apparently realised per share for the past year.

But the number of *unadvanced* shares is 453½ less 33, or
420½, and 57*l*. 3*s*. 8*d*. divided by 420½ equals 2*s*. 5*d*. nearly,
which is the result of the past year's operations of this building
society, *as far as the above debtor and creditor account is con-
cerned*, and entitles the investers to receive 2*s*. 5*d*. per share
at its *termination*, in addition to the £6 paid by each.

The *true value* of each share can only be ascertained by
the method described in the preceding pages, in which would
enter the various considerations deduced from the particular
nature of the society.

<div align="center">No. 2.</div>

<div align="center">" The ——————— Mutual Association.</div>

Established in ————. Original entrance fee, 2s. 6d. Monthly subscriptions, 10s. Redemption, 4s. per share of £120 each.

In the *third* annual report of this society, the directors state, that $85\frac{1}{2}$ shares have been advanced during the last year, which, added to those in the two previous years, make a total of $261\frac{1}{2}$ shares, on account of which securities have been lodged with the society.

"Since the auditing of the accounts, $5\frac{1}{2}$ shares, not included in that number, have been further advanced, which will make 267 out of 635 shares subscribed for; and the directors are under engagements to advance 20 shares out of the fourth year's capital.

"The *present entrance fee* upon new and additional shares is £6; but upon shares being taken to complete a purchase it is only 2l. 2s. 0d., at which sum it was agreed they should continue until after the shareholders' meeting in January last.

"The minimum premium or discount upon purchased shares has been fixed by the directors at £55 per share for the fourth year."

Summary of the financial statements as appended to the report :—

"GENERAL ACCOUNT, FOR THE THIRD YEAR, ENDING OCT. 14, 1848.

"*Dr.*

1847. To cash, as per last account	£8329	17	1
1848. Subscriptions	3650	16	6
*Interest, entrance fees, fines, rules, transfers, &c..................	590	0	7
Forfeit on purchased shares	60	0	0
*Arrears of subscriptions, fines, interest, &c........................	100	16	0
Cash advanced as a loan..	4085	0	0
Premiums as per last report	10626	19	5
Premiums for 1848	4938	17	6
	£32382	7	1

* | The practice of throwing several items together to account for so large a sum as £590, as in the third line of the above debtor account, is unfair, and may justly become the subject of animadversion among the shareholders. |

" *Cr.*

Expenses for 1846-47	£204	11	3
Interest on loans (2 years)	65	4	0
176 shares advanced in 1846-47....................	21120	0	0
85½ ditto in 1848	10260	0	0
1848. Management *expenses*..	77	18	2
Interest on loans	183	4	4
Ground rent and insurance..	11	1	2
Arrears, as above...	100	16	0
Cash with bankers	359	12	2
	£32,382	7	1

PROFIT ACCOUNT.

" *Dr.*

1848. Expenses for three years	282	9	5
Subscriptions, ditto	11361	9	0
Interest, ground rent, and insurance....................................	259	9	6
Arrears	100	16	0
Loans	4085	0	0
Cash with bankers	359	12	2
Profit and bonus	15933	11	0
	£32,382	7	1

" *Cr.*

By account as above	£32,382	7	1
	£32,382	7	1

" *Shewing :*

Profit and bonus brought down, divided between 635 shares			
of £120 each	£25	2	0
Subscriptions paid	18	0	0
Estimated portion of each share cancelled in three years	£43	2	0"

The above account contains various errors, and the items are injudiciously mingled together.   The profit 15,933*l.* 11*s.* does not in reality exist, as it is in great measure an imaginary advantage, supposed to have arisen from the discount given by borrowers on their shares, and, as such, ought not to have appeared in the balance sheet.

We will not examine what would be found to be the actual value of the shares, supposing a proper calculation made, but simply remark, that the above furnishes ample evidence of the deficiency, arising from the expenses, which must exist towards the epoch of a society's termination, if they so considerably diminish, even in three years, the interest realised on the investers' subscription; for the receipts from interest and fees, including the forfeited shares, altogether only amount to 650*l*. 0*s*. 7*d*., of which 541*l*. 18*s*. 11*d*. has been absorbed by the expenses, leaving 108*l*. 1*s*. 8*d*. to be divided between 368 unadvanced shares, which is about 5*s*. 10*d*. per share, and is all the interest obtained for three years' subscriptions on each.

Such a result speaks for itself.

<hr>

No. 3.
The ——————— Society.

Established —————————. Original entrance fee, 2*s*. 6*d*. *present one*, £1 per share. Shares, £120. Monthly subscriptions, 10*s*. Redemption fee, 4*s*. per share.

In the first annual report published in —————————, the directors allude to the *success* which has attended the progress of the society :—

"There are 113 members, holding 211½ shares, and the total profits, after deducting expenses, amount to 1096*l*. 17*s*. 9*d*., being 5*l*. 1*s*. 2*d*. per share; which added to the subscription of 6*l*. paid on each share, shows a profit of 11*l*. 1*s*. 2*d*. to be the progress made towards the realisation of each share."

The following are abstracts of the financial statements :—

"*Dr.*   "CASH ACCOUNT.

		£	*s.*	*d.*
Subscriptions on shares		£1258	10	0
Entrance and redemption fees, fines, rules, &c		60	13	9
		£1319	3	9
"*Cr.*				
Expenses		66	14	9
Advances on 19½ shares	£2340 0 0			
Less premiums thereon	1106 5 0			
		1233	15	0
Balance with bankers		18	14	0
		£1319	3	9

PROFIT ACCOUNT.

"*Dr.*

To expenses..	£66	14	9
Balance or profit of the first year	1069	17	9
	£1136	12	6

"*Cr.*

Premiums on 19½ shares	£1106	5	0
Subscriptions and fines in arrear......................................	11	13	6
	1117	18	6
Balance in bankers' hands	18	14	0
	£1136	12	6

Profit brought down:—

£1069 17s. 9d. divided by 211¼ shares, gives	£5	1	2
Subscriptions paid	6	0	0
Actual value of each share	£11	1	2"

The above result is fictitious in consequence of the discount or premiums 1106*l.* 5*s.* 0*d.*, given by the borrowers on the nominal value of their shares, being entered as actual profit or cash realised. Instead of any *interest* having been produced by the past year's business, we find that the expenses have even entrenched on the receipts from *subscriptions ;*—

For the expenses paid amount to....................£66 14 9
Less fees, fines, &c. to be received or in arrear ... 60 13 9

Leaving a deficiency of ....£ 6 1 0

which divided among the 192 *unadvanced* shares, gives a deficiency of about 7½*d.* per share.

* Art. 101.—"SCHEDULE C.

FORM OF LIABILITIES AND ASSETS ACCOUNT.

Dr.

1. Outstanding accounts unpaid: *viz.,*............£

   ——————— £

2. Loans and interest thereon due by the
   society: *viz.,*.....................................£

   ......

   ————————

3. †To *net* subscriptions actually received upon   shares
   (now actually in existence) of depositing (or non-borrow-
   ing) members, from the   of   18 ,
   to   the   18 ....

4. To interest due thereon up to this date and calculated at
   .   per cent. rate of interest, (being the rate obtained
   from the borrowers, or that promised to the depositors
   by the rules) ....

5. To reserve for future expenses during   years...........

   Total........... .... £

Cr.

1. By cash in hand: *viz.,*

   ......£

   ......

   ————————

2. Value of property in possession, through default, if sold to
   produce assets..

3. ARREARS due from the existing mortgages: *viz.,*
   Re-payment subscriptions....................£
   Fines and fees ....£

   ————————

4. †By arrears of fines and fees due from non-borrowers ...

5. Present value of existing mortgages, if redeemed, from
   which re-payments for   years are to be received.
   This present value being calculated at   per cent. rate
   of interest, or by rule   ....

   Total.......................£

   Balance.................... £   ,,

The above has been prepared by me, —— —— Chairman or Secretary,
this   of   18 , at

* [Schedules A and B relate to the general business of the Society, and
may be had on application to the Author.]

† NOTE.—[The arrears of *subscriptions* due from non-borrowers must not
be taken into account, as the society is only made debtor to them for the *net*
Subscriptions received]

CHAPTER VII.

* RULES FOR A PERMANENT BENEFIT BUILDING SOCIETY.

(*Copyright*).

[' *I have been led to consider the manner, in which a Benefit Building Society may be constituted on a permanent basis, so as to be free, as far as possible, from the imperfections inherent in the terminating system, and with this object I have prepared a set of Rules for its practical management.*'—Preface to first edition.]

Established pursuant to the Act of Parliament, 6th and 7th William IV , cap. 32.

ART. 102.—.£100 Shares. Monthly payments for 10 Years, 13s. per share, or for 12½ Years, 10s. per share. Entrance fee 2s 6d. per .£100 Share. Half-shares of £50, or Quarter-shares of £25 each, may also be taken. The Law Expences advanced to Members purchasing Property.

The First Subscription Meeting will be held on ———— ———— ———— *at* ———— *o'Clock in the Evening, at*—————————; *and subsequently on the First Monday in each Month at the same Hour.*

I. *Name and Object of the Society.*

103.—THAT this Society shall be called the———— ———— ———— Its object is to raise a fund to enable its members to receive an advance in full, of a share or shares, for the purpose of erecting or purchasing a dwelling-house or houses, or other real or leasehold estate in any part of England.

* [These Rules, as well as the whole of the work, are copyright, and they have been confirmed and certified by Mr. Tidd Pratt, the government barrister appointed for such purpose. They differ slightly from those in the first edition, which were also certified. Copies, with the names in blank, will be supplied to persons interested in the formation of Benefit Building Societies. It should be understood that they would mainly serve as a type of the apparently best system that can be devised. In particular localities some modifications may occasionally be made with advantage.]

['*If it be intended to make advances on Copyhold property, it will be advisable not to specify the same by name, but to consider it as included in the words " Real Estate," which belong to the Act.   The majority of existing societies unhesitatingly make advances on either Freehold, Leasehold, or Copyhold property.*']

11.   *Time and Place of Meeting.*

104.—That the first meeting for the receipt of subscriptions and the transaction of the ordinary business of the society be held on ————at——o'clock in the——at——in the city of———; and that the succeeding meetings for receipt of share-subscriptions, and advance repayments, shall be held on the first Monday in each month.

105.—That the ordinary meetings of the society shall be held at the offices aforesaid, on the first Monday in each month, at — o'clock in the evening. That the directors shall have power, from time to time, to remove the said offices, and alter the time of meeting as they may see fit.   That notice of any such removal or alteration shall be given to every member of the society.   That the directors shall have power to hold special meetings of their body, and to adjourn their ordinary and special meetings, as well as all general and special meetings of the members of the society, as occasion may require.

That the business of the directors' meetings shall commence at — o'clock in the evening, unless upon subscription nights, when the same shall be deferred to — o'clock.

106.—That an annual general meeting of the members shall be held on the first Wednesday in the month of ———— in each year, at which the directors shall exhibit a general statement of the funds, effects, liabilities, and accounts of the society, together with an account of all and every the sums of money received and expended on behalf of the society during the past year; such statement to be previously audited in manner hereafter mentioned, and countersigned by the manager, and a copy of such statement shall be supplied to every member on application to the manager.

107.—That a special meeting of the members may be held on a requisition to the manager to convene such meeting; such requisition to be signed by at least five directors, or by ten ordinary members,

which requisition shall state the object for which such special general meeting is required; seven days' notice at least of which meeting shall be given to every member, stating the hour, place, and object of such special general meeting. That at such special general meeting no business shall be transacted not mentioned in the requisition calling such meeting.

III. *Share Subscriptions.*

108.—That the shares shall be of the ultimate value of £100 each. Each member, on admission, shall pay an entrance fee of 2s. 6d. per share, and a monthly subscription of 13s. per share, for and during the full term of ten years, or 10s. for $12\frac{1}{2}$ years, to commence on and from the first day of the month in which he or she shall be admitted.

Half and quarter shares may also be issued by payment of an entrance fee of 1s. 6d. & 1s. respectively, and a monthly subscription of half or quarter that required for whole shares.

109.—An allowance of * fourpence in the pound will be made on all subscriptions paid in advance, for a period of more than six and less than twelve months. The monthly payments may be compounded for by a single payment, according to Table 1 :—[shewing the single payment which will compound for the monthly payment of one share for any number of years up to $12\frac{1}{2}$.]

TABLE 1.

*[*The Directors should be cautious not to offer too much discount on shares paid in advance. It may be safe to hold out a promise of accumulations from interest, by the end of a term of years, at even 5 per cent. or more; but it does not follow that it would be equally so, to allow 5 or $4\frac{1}{2}$ per cent. discount on money tendered in advance. The distinction is obvious:—in the one case, the undertaking is simply to give the result of the interest after it has been realised; in the other, the equivalent is parted with at once, and a grave responsibility unnecessarily incurred of so investing the money received as to recover the discount (or forestalled interest) paid in advance.]*

IV. *Advances and Re-payments.*

110.—The society will make advances to its members for terms of from 5 to 14 years, repayable by monthly or quarterly contributions, covering principal and interest, at the rates hereafter specified, *viz.*,

TABLE II.

Repayments for a Loan of £100, and interest.

				Monthly.	Quarterly.
For a Term of 5 years			....	£2 0 8	£6 5 0
,,	7	,,	....	1 11 0	4 15 4
,,	10	,,	....	1 3 9	3 13 1
,,	12	,,	....	1 1 0	3 4 6
,,	14	,,	....	0 19 1	2 18 9

111.—When a loan is required for twelve years, not more than three-fourths of the value of the mortgaged property shall be advanced thereon : nor more than two-thirds of its value, when the loan is taken for fourteen years.

[*For loans taken out for shorter periods than twelve or fourteen years, it will be for the Directors, on the advice of their surveyor and solicitor, to decide what proportion of the value of a property shall be advanced on the security of it. It is important that they should bear in mind that the risk of subsequent deterioration in the value of a security increases with the length of period of the mortgage.*]

112.—No member will be allowed to receive an advance of shares exceeding the number he has previously subscribed for, unless he pay down the entrance fees, and continue to pay half the subscriptions on the whole number of shares required from the date of his being placed on the list. *(See 146.)*

113.—The following commissions shall be deducted from all advances made to members, and shall be appropriated to the management and contingent fund :—namely,

TABLE III.

				Not exceeding in amount					
				£100.	£200.	£300.	£400.	£500.	&c.
On Loans advanced for 5 years..									
,,	,,	7	,,						
,,	,,	10	,,						
,,	,,	12	,,						
,,	,,	14	,,						&c.

[*The rates will vary with the locality in which the society is situated, and should be regulated by the principle in the Appendix, section 4.*]

And that in consideration of the aforesaid commissions so allowed, borrowing members shall not be called upon to contribute, *after* the date of their advance, in respect to the shares upon which they have borrowed, any other sums towards expenses or contingencies excepting such fines, transfer, or other fees, as may be hereafter mentioned in these rules. *(See end of Art. 142.)*

114.—Members not being in arrear for subscriptions or fines, and having made payments during at least three months on their shares, shall be eligible to apply for an advance not exceeding the value of their shares, as fixed by Rule 3, provided they apply in writing to the manager, on or before the 25th day of the month, stating the amount desired, and such member shall receive a notice of all subsequent meetings for advance of money, until they be declared entitled to an award.

115.—Members, applying for advances for an amount greater than the value of the shares then held by them, must pay the entrance fee and half the subscriptions from the time of giving notice upon such additional number of shares as will be equivalent to the sum required.

116.—Any member entitled to an advance shall, within one month from the date of notice forwarded to him through the post office, find a good and sufficient security by way of mortgage for the same, and in case of failure he shall be allowed a further period of one month to complete the same, provided he pay interest on the advance, at the rate of — per cent. per annum, to commence with the second month so allowed him, at the end of which time his right to such advance shall be forfeited to the next member then on the list, unless he consent to make his repayments in respect of his awarded advance from that date.

117.—Members entitled to advances shall furnish duplicate particulars of property proposed as security, in the form to be furnished by the manager at the offices of the society; and the security being accepted by the directors, who shall have been previously satisfied by the surveyor and solicitor, of the sufficiency of the security offered, and all other preliminaries being arranged, the money agreed to be advanced shall be paid over to the member. And in case the money is applied to the purchase of land, and afterwards to erect buildings

thereon, the same shall be advanced by such instalments as the surveyor shall advise the Board of directors.

118.—The expenses of enquiry into title, and of survey of property, shall be borne by the member proposing the security, who shall deposit with the society a reasonable sum on account thereof, at the time the security is offered.

119.—That the repayment for advances shall be made at the end of the first calendar month, or of the first quarter, (as may be agreed upon by the directors) next following the receipt of the advance or any portion thereof, and shall continue to be so made for the full period for which the advance may have been originally taken, unless the mortgage be previously redeemed; and that, in all cases, such repayments shall be due on the first day of each month, and be respectively made thereon, if it be a day of meeting, or on the first subscription meeting thence ensuing.

120.—That the Board shall have the power to regulate the amounts applicable for advances, and the time and manner for making the same.

121.—Members desiring advances before they are declared entitled to them, may be accommodated, provided they have been members for at least six months, and provided the society can obtain loans from members, their bankers, or others, to meet such purposes, and upon their agreeing to pay the additional interest (if any) for a stated period, or until such advance shall be otherwise awarded to them ; and, in such cases, preference will be given to members, who shall procure a loan for the society to meet their advances.*

122.—[The society will receive deposits of any sum not less than £5, allowing interest at a rate not exceeding 4 per cent., payable yearly.] *(See Art. 91, paragraph 9 and section 4 Appendix.)*

123.—In case a larger amount of funds shall be at any time unappropriated than the board shall consider advisable, the board shall, after giving notice of at least 14 days prior to their usual monthly meeting, have power to cause ths same to be taken by the Investing members (not under notice of withdrawal, nor having received an advance), and the sums then so declared by the board to be taken in

[* See Art. 48 for remarks on this point.]

single shares shall be wholly withdrawn, or be taken by such members to whom the same may be advanced upon the security of mortgages in the usual way; and subject, in case of a default, to a forfeiture of their existing shares.

V. *Fines for Non-payment of Share and Advance Subscriptions.*

124.—Subscriptions for shares and advances shall be payable at the offices of the society on the first ——————— in each month, between the hours of seven and nine o'clock in the evening, receipts for which shall be given, on a card or book to be provided by the society, by one of the directors of the society then present, countersigned by the manager; and no acknowledgment otherwise given or taken shall be valid, unless the manager be unavoidably absent, when a minute of the directors shall be duly entered in their journal, authorising some member of the board to perform the duties of the manager on that occasion.

125 —The fines for non-payment of share-subscriptions shall be at the rate of 6*d.* per share per month for each default, and so in proportion for half-shares.

The fines for non-payment of monthly advance-repayments shall be at the rate of 1*s.* in the pound per month on the amount thereof, and upon quarterly repayments at the rate of 1*s.* 6*d.* in the pound for each month's default.

(ª) When the fines on unadvanced shares equal the amount paid in, the same shall be forfeited to the society. *The Board shall have power to allow a member specially to suspend his subscriptions on *unadvanced* shares on his making application to the Board for that purpose, and on his paying half the fines above mentioned.

VI. *Security for Advances.*

126.—The mortgage deed shall contain full powers of sale, as a security for so much money as shall be therein expressed to be ad-

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* [Such a clause is necessary to suit the contingency of temporary difficulty on the part of members in the payment of subscriptions, unaccompanied by a desire to withdraw from the society.]

(ª) [*These small letters are inserted to assist the reference to sub-divisions of Clauses.*]

vanced and secured. In case the mortgagor shall fail, neglect, or refuse, for the space of four calendar months, to observe and perform all or any of his or her covenants for payment of advance-instalments, according to the terms and conditions of these rules and the said mortgage, as well as any fines inflicted for neglect of payment, on his or her part to be observed and performed, then the trustees named in the said mortgage, or the survivor or survivors of them, or the executors or administrators of the last survivor, or the trustees for the time being of the society, shall, either with or without the privity or consent of the said mortgagor, his or her heirs, executors, administrators, or assigns, have power to take absolute possession of the said premises, and to let the same, and to appoint a person to be approved of by the said board, to collect the rents of the premises thereby mortgaged; and may at any time or times hereafter, absolutely sell all or any part of the said premises, either by public auction or private contract, and either together or in lots, and at one time or separate times, if desirable, for the most money that can be reasonably had or gotten for the same; ([a]) and that every receipt of the trustee or trustees for the time being shall be a good and sufficient discharge to the purchaser or purchasers, paying his or their purchase-money, who shall not be obliged to see to the application of the same, nor be required to see whether any or what monies shall be due under such mortgage, or whether there has or has not been any breach on the part of any such mortgagor of the rules of the society, or of the stipulations of such mortgage deed, nor whether he or she has failed to pay any of the advance-repayments, fines, or other payments, either for the said space of four calendar months or for any other period; nor whether such trustees or trustee, or the executors or administrators of the last survivor of them, or the trustee or trustees of the society for the time being, have or have not authority for disposing of the premises comprised therein, but the possession of the title deeds and mortgage deed, and the written instructions of the board of directors, shall be considered sufficient authority for the disposing of the said premises by the trustees; ([b]) provided always, that the money produced from such rents and profits, or such sale or sales, as aforesaid, shall, in the first place, be applied in payment of all costs and expenses, which may be

incurred on account thereof, and, in the next place, to reimburse the society in the amount of advance-repayments then due and unpaid, together with all fines and commissions in respect thereof; and in the event of a sale or sales, of the then value of the future repayments in respect of such mortgaged property, with interest on the aforesaid amount of arrears and fines, up to the completion of the sale or sales, and on the then value of such future advance-repayments, at the rate of 7 per cent. per annum from the date of the first default; and that the present value of such future repayments shall be calculated by the consulting Actuary from the date of the completion of the sale or sales to the end of the term for which the mortgage was originally taken, discount being allowed at a rate, to be fixed by the consulting Actuary, not exceeding $3\frac{1}{3}$ per cent. per annum on such future repayments to the end of the mortgage term, and upon the principle of repayments made at the end of each year; and, in case the rents and profits of the mortgaged property, and produce of the sale thereof, after deducting expenses, be not sufficient to discharge the amount of such repayments in arrear, and the present value of the future repayments so calculated and interest thereon, the mortgagor so in default shall immediately pay the balance due thereon to the society; but that the trustee or trustees shall pay the surplus (if any) arising from the receipt of the rents and profits, and from the sale of such premises aforesaid, to the said mortgagor, his, her, or their heirs, executors, administrators, or assigns, or as he, she, or they may or shall direct: (ᶜ) provided always, that in case any of the mortgagors named in any mortgage deed, or his, her, or their heirs, executors, administrators, or assigns, having obtained an interest in such property (so long as the said premises may continue in mortgage to the society), shall become insolvent, or be imprisoned for debt, or be made bankrupt, then such trustees or trustee, or the executors or administrators of the last survivor of them, or the trustees for the time being of the society, with the sanction of the board of directors for the time being, shall have full power and authority immediately to take possession of the premises mortgaged, and let and manage the same, and collect the rents thereof, whether such mortgagor, or his heirs, executors, administrators, or assigns, be in arrear with his, her, or their payments, or not; and to sell the

said premises, if the rents so received be not sufficient to meet the repayments falling due in respect thereof; and in case any of the premises mortgaged to the society be left incomplete, the trustees or trustee for the time being, under the direction of the board, shall have power to complete the same, and the money expended and laid out in so doing shall be considered as part of, and in addition to, the original mortgage. And the said trustees shall also, with the sanction of the board, have the option of selling and disposing of the premises mortgaged, either in their incomplete state or upon the same being so completed as aforesaid. That upon payment of all monies due upon such mortgage, pursuant to these rules, the trustees or trustee for the time being, shall, at the cost of the member or person requiring the same, endorse a receipt or acknowledgment for the same on the said mortgage, in the form annexed to these rules, according to the act 6 and 7 Wm. IV., cap. 32, sec. 5.

127.—That during the continuance of a mortgage the member shall become actual tenant to the society in respect of his mortgaged premises, which shall be chargeable with the repayments in discharge thereof, as ordinary rent, and for any arrears of which repayments the society shall have power to distrain in the usual way. And in case the mortgagor, his, her, or their heirs, executors, administrators, or assigns, shall at any time fail to comply with any of the covenants of the lease or deed under which a mortgage properly may be held, or shall break through or infringe any of such covenants, then that the trustees or trustee for the time being, shall, in like manner as aforesaid, have full power to take possession of and to let and sell the said premises without any previous notice.

128.—That members holding advances upon quarterly repayments shall be considered to be in arrear of four months, when any quarterly repayment shall have remained unsatisfied for the period of one calendar month after the same shall have become due.

129.—That no money shall be advanced by way of a second mortgage, unless the prior mortgage be to the society.

VII. *Fire Insurance and Ground Rent.*

130.—That all property mortgaged to this society shall be insured, in pursuance of any covenant contained in the lease or deed under

which such property shall be held, or as the directors shall determine ; and the manager shall immediately effect the same in the names of the trustees of the society, in conformity with written instructions to be furnished to him by the solicitor ; and, in case of neglect, the manager shall be fined twenty shillings ; and he shall pay all premiums for insurance of mortgaged property as the same respectively shall become due, or be fined twenty shillings for each insurance left unpaid; and the members on whose account such premiums for insurance shall be paid, shall, on demand, refund the amount so paid. *(See end of* 131.*)*

131.—That the manager shall pay all ground rents chargeable on property mortgaged to the society immediately on the several amounts respectively falling due, or within such period as the ground landlord may stipulate, or he shall be fined twenty shillings for each neglect ; and the member on whose account such ground rent shall be so paid, shall immediately refund the amount thereof, with and in addition to his next monthly advance-repayments, and in default thereof, pay a fine of one shilling in the pound on the amount thereof ; and until such ground rent and fine be paid by the member, the same shall be deducted from the amount of advance-repayments already paid by him, which shall be liable to fines the same as if the portion advance-repayments had not been already paid ; and the same rule of deduction shall apply to the non-payments of fire insurance premiums.

132.—Whenever any property mortgaged to this society shall receive any damage from fire or any other cause, for which the insurance company may be liable to give compensation, the trustees for the time being of the society shall receive the amount of damage so sustained from the insurance company, unless by the power usually granted to certain insurance companies, the insurance company, by which such property has been insured, shall cause the premises so destroyed or damaged to be rebuilt or repaired ; and in such case, the surveyors of the society shall inspect the premises so rebuilt or repaired, and furnish to the board of directors their report of the sufficiency or insufficiency of such re-erection or repairs by the insurance company, and in case the same be not completed to the satisfaction of the directors and the surveyors, the board of directors shall be empowered to take the necessary steps to have such re-

erection or repairs of the said premises perfected by the insurance company, to the extent of the insurance effected in the policy of insurance. But in case the trustees for the time being shall receive the amount of such damages in money from the insurance company, then the board of directors shall cause the said premises to be rebuilt or restored, under the superintendence of the surveyor of the society, at a cost not exceeding the amount of such monies so received from the insurance company, unless the member interested in the property shall furnish additional funds requisite to cover any further outlay he may require.

VIII.   *Power to sell, redeem, and exchange mortgaged property.*

133.—That if any member who shall have obtained an advance shall be desirous to sell the property mortgaged, it shall be lawful for the purchaser, on becoming a member of the society, to take the property subject to such mortgage, and thenceforth to become answerable for the payment of all advance-repayments in arrear, and fines then due thereon, as well as for all future advance-repayments and fines thereon, from time to time, falling due in respect of such mortgaged property; an account of all which advance-repayments and fines then due and unpaid, shall be made up and acknowledged (in writing) by the person proposing to receive such liabilities and property in mortgage, which said account shall be duly signed by the person so becoming a member, in the presence of the manager, solicitor, or one of the directors of the society ; and, provided the sanction of the directors be given to such transfer, the trustees for the time being shall, at the request and cost of the member so transferring his interest in the mortgaged property, then release him from all future responsibilities in respect of such property so transferred.

134.—That a transfer fee of five shillings for each advanced share shall be payable to the society after a mortgage has been made.

135.—That if any member shall be desirous of having his property discharged from the mortgage, under which it may be liable to the society before the expiration of the full term for which it was originally taken, he shall be allowed to do so on giving a notice of two clear calendar months prior to the ordinary meeting at which the redemption of such mortgage is proposed to be completed ; and

that, on payment of all advance-repayments, and any fines due in respect thereof up to the time of the redemption of such mortgage, and of the present value of the future repayments calculated by the consulting Actuary upon the same principle as in Rule 6, to the end of the original term, and discounted after a rate of interest to be fixed by the consulting Actuary, not lower than $3\frac{1}{2}$ per cent , together with a redemption fee of 5s. per cent. on the balance so due, the trustees for the time being shall, at the request of the directors, and at the cost of the member, cause to be endorsed on the mortgage deed, a receipt or acknowledgment for the full payment of the amount secured in such mortgage in the form annexed to these rules, according to the act, 6 and 7 WM. IV., cap. 32, s. 5.

136.—That the fee for the consulting actuary be paid by the member for whose benefit, or by whose default, he is consulted by the Directors.

137.—That members giving notice of a redemption of a mortgage, shall be liable to the usual fines for nonpayment of the advance-instalment up to the time such redemption shall be completed.

138.—Members may, on payment of the expenses of survey, and other necessary charges, and a fee of 5s. for each advanced share, exchange a mortgage already taken to any other property of adequate value, provided no alterations be made in the original mode of repayments; and with the consent of the directors, members may also discharge any portion of a property from the liability of a mortgage.

IX. *Members transferring or withdrawing shares.*

139.—Members not having obtained advances may, on giving notice to the manager, of at least seven days prior to the first and third Monday in each month, be at liberty to transfer his or her shares, and the entire interest therein, on payment of a transfer fee of 2s. per share to the society ; but in case any award of advanced shares has been made to the member, a transfer fee of 20s. per share shall be chargeable thereon ; but in such case the transfer must be made to an existing member of the society.

[*In consequence of members sometimes making it a practice to apply for advances (when they have no intention of purchasing*

property) in the hope that, if successful in their application, they may make a profit by transferring the right of advance to another member, it is expedient to apply a check to such a practice, by charging a fee of proportionate amount to the party transferring.]

140.—The agreement of transfer shall be made and executed by the member, and duly attested to the satisfaction of the directors.

141.—In case of the death or insanity of a member before receiving an advance, and upon the application of the wife, widow, or legal representatives of such deceased or insane member, to withdraw from the society, the wife, widow, or such representatives, shall be entitled to a preference before ordinary members, and to withdraw at any time, and to receive back, at the time fixed by the directors for such repayment, the amount of subscriptions or shares which such deceased or insane member may have paid to the society, less all fines due and unpaid by the insane or deceased member at the time of his seizure or death, with accumulations thereon, as hereinafter provided.

142.—Members not having received an advance, who may be desirous of withdrawing from the society, must send a written notice to the manager of their intention so to do, at least 21 days before the first — ———— in each month, and such withdrawals will be regulated as follows:—No withdrawals to be permitted, unless in case of death or insanity, under twelve months from the date of each member's admission respectively; provided always, that payment of any debts due from the society shall, if required, be made, before any share can be withdrawn; and that, under all circumstances, the sums paid for withdrawals shall in no case exceed the income derived from the repayments of shares already advanced to members; and that withdrawn shares (not wholly subscribed for) shall be paid out according to the number of applicants on the list kept for that purpose, each member receiving the due proportion of his subscription paid in, so that all such members shall be simultaneously accommodated with a portion of their shares. (¹) And that in case the Expenses of the society and any loss sustained by it, exceed the monies appropriated to the management and contingent fund, all withdrawn shares shall be chargeable with a due proportion of such excess according to the

number of years such shares shall have been in force—and that this rule shall equally apply to members cancelling their unadvanced shares previously to their taking a loan from the society.

143.—That next after payment of withdrawn shares to deceased or lunatic members, the persons holding unadvanced shares paid up for the subscribed term shall have the preference, who shall be paid out in full and in rotation, according to their respective subscriptions being fully discharged, subject, however, to the aforesaid deduction for excess of expenses or losses (if any); and that interest, payable annually at a rate not exceeding 5 per cent. per annum, be allowed to such members holding paid-up shares, on the amounts respectively due to them, such interest to commence from the date of the realization of their shares respectively.

144.—That subject to such provisions aforesaid, the sums payable on *withdrawn shares* (upon which all subscriptions and fines shall have been duly paid) shall be according to the following table; and, provided a member voluntarily withdraw his shares in the course of a year, the sum set down at the close of the last year shall be payable, with interest thereon according to the following table, and also any monthly subscriptions subsequently paid; and so in proportion for half, or quarter-shares; (ᵉ) Or the half or quarter of a share only may be withdrawn.

TABLE IV.

[We recommend this table to be calculated on the principle of an ascending rate of compound interest, so that a member may be induced to abstain from withdrawing from the society, through the prospect of increasing advantage held out to him.]

145.— When any subscriptions or fines shall remain due and unpaid on any withdrawn shares, or parts of shares, at the end of a year, for a period not more than four months, the amount of such unpaid subscriptions and fines shall be deducted from the sums set down in the above table, and the balance thereof shall be payable to the

member, such fines to be calculated up to the first day of the month on which the applicant for withdrawals is placed on the list kept for that purpose. But, where the subscriptions or fines shall be in arrear for more than four calendar months, the deductions, as aforesaid, shall be made, but no further interest shall be allowed on the previous payments, until the arrears are settled.

146.—Members on receiving advances may continue to hold their shares or cancel the same; in which latter case, the sum then due in respect thereof will be passed to the credit of their loan account, and security will be taken only for the balance.

147.—After the society has been seven years in existence, the directors shall have power (with the advice of the consulting actuary) to alter the rate of interest allowed on withdrawal of unadvanced shares.

X. *Members Dying, becoming Lunatic, or Insane.*

148 —That no benefit of survivorship shall be claimed by the members of this society; but upon the death of members during the term of their subscription, their legal representatives shall succeed, according to law to their shares and interest in their property mortgaged to the society, (if any), and shall enjoy the same privileges, and be subject to the same payments, fines, &c., as the deceased shareholder would have had to pay, had he been living (f) But in case such shares or interest in mortgaged property devolve upon more than one legatee, or more than one executor, or administrator, the right of voting of such legatees, or executors, or administrators, as members of this society, shall be restricted to one of them respectively, either to be agreed upon by themselves, or, in case of dispute, to be determined by the board of directors.

149.—That in the event of any member being declared lunatic, or of unsound mind, no fines shall be payable for arrears of subscriptions, fines, &c., until a committee or guardian of such afflicted member be legally appointed, or until some relative or friend shall undertake to discharge his said subscriptions, fines, and other payments to the society; provided, nevertheless, that on an application being made by the directors to some relative or interested friend of the afflicted member, to see to the due payment of his or her subscriptions,

advance-instalments, and other payments, such application shall be deemed a reasonable cause why such fines should be thenceforward enforced, and that the directors shall then be fully authorised in taking the ordinary steps for the recovery of all arrear payments whatsoever, which may be then due in respect of the shares or mortgaged property of the afflicted member, and if requisite, to proceed to the sale of such property, in the usual way; and that upon the legal appointment of a committee or guardian of the afflicted member, the society shall, if so required, but at a time fixed by the directors, pay over to the committee or guardian of such afflicted member, the amount of actual share subscriptions paid by such members, less the fines due up to the time of his lunacy, or unsoundness of mind, and the usual deduction towards the expenses of management as in the case of an ordinary withdrawal of shares; and in case such afflicted member may have received an advance of shares, the committee or guardian may be allowed to dispose of such property, or to redeem the mortgage thereon, or exercise any other privileges thereof as may pertain to the said member; and in case of a transfer of shares or mortgaged property, or of a redemption of such property in consequence of such lunacy or unsoundness of mind, the transfer and redemption fees, chargeable in respect thereof, shall be reduced one-*half* the usual rates.

XI.   *Expenses of Survey, Mortgages, &c.*

150.—That the expenses of every survey, valuation, mortgage, and supervision by the surveyor of the society of any buildings erected upon property previously mortgaged to the society, shall be borne by the members respectively applying for or receiving an advance, and excepting the cost of stamps, registration, and other monies paid out of pocket at the time by the solicitor or surveyor, the expenses of mortgage may be repaid by an additional and proportional monthly subscription extending over a period not exceeding twelve calendar months, provided the member agrees to allow a fee of 1*s.* in the pound on each additional monthly subscription; and in case of a failure of their due payment, the same shall be chargeable on the mortgaged property, and be deducted from the advance-instalments.

XII. *Management and Contingent Fund.*

151.—All fines, fees, and commissions whatsoever mentioned in these rules, shall be passed to a management and contingent fund, and so also a deduction at the rate of five pounds per cent. per annum, from the amount of income derived from the repayment of advanced shares. [*See the Appendix, for the explanation of the principle of this and similar deductions, also sec. 4 for the Expense and Contingency Theorem, by which the per centages should be regulated.*

152.—That the expenses of management, and any losses that may be incurred by the society, shall be defrayed out of the management and contingent fund; but if such expenses or losses be greater than the sum of such management and contingent fund, the excess shall be borne by the holders of unadvanced shares, not wholly paid up in proportion to the number respectively held by each, and according to the *number* of years the same shall have been in force; and by those members who have paid up the whole or part of their shares in advance, and received discount thereon; [and by those members, who voluntarily leave their realised shares as a deposit in the society's hands, and receive interest for the use thereof.] *(See* 122.*)*

153.—That at the end of the first three years, and every subsequent year, an estimate of the management and contingent fund shall be made, and if, after all losses and expenses shall have been satisfied, any surplus profit remain, the same shall be appropriated thus :—

One-third to a permanent guarantee fund to meet future contingencies ;

And the other two-thirds to the holders of all unadvanced shares, not then in arrear for subscriptions and fines, in proportion to their shares held, and to the number of years they have been respectively in force, such bonus to be paid to the members on the completion of the monthly subscriptions on their shares. No portion of this bonus to be paid to members withdrawing previously unless the withdrawal is compulsory pursuant to Rule IV, No. 123. *(See sec. 4 Appendix.)*

154.—After the society has been 9 years in existence, it shall be lawful for the members, at a special general meeting summoned for the purpose, with the advice of the consulting actuary, to alter the above proportion in the division of surplus profits.

155.—That the expenses of all special meetings of the members shall be borne by the members subscribing the requisition, unless the directors determine the importance of the occasion to be such as to render their payment by the society just and reasonable.

156.—That each member on admission shall pay one shilling for a copy of these rules.

XIII. *Registers of Members, Shares.* &c.

157.—That a register be kept, in which shall be entered the christian and surname, profession, trade or business, and the place of abode of every member of the society, and as often as any member shall change his or her place of abode, he or she shall within 14 days give a notice thereof to the manager, or forfeit 1s. 6d. for each neglect. That, on such notice being given, the alteration will be duly entered in such register; and all notices shall be deemed duly given by putting the same into the post office, addressed to the member according to the last entry on the register.

158.—That a register of every member of the society be also kept, in which shall be entered the number and numerical order of the shares held by him, her, or them, the date of entry, transfer, or cancelling of the same, and any other details deemed necessary.

XIV. *Audit of Accounts and Consulting Actuary.*

159.—That at the first meeting of the society, two auditors shall be chosen, one by the directors and one by the members present, for the purpose of auditing the accounts and watching over the expenses of the society, prior to the annual general meeting. That the future appointments of auditors shall be made at the general annual meetings, except in the case of death during the year, when the vacancy shall be filled at the next monthly meeting by the directors and members respectively present. That the auditors attending shall receive 21s. each, as a remuneration for their services. (ᵍ) That a consulting actuary shall also be engaged to make an investigation of the accounts of the society at the end of each year, to whom also all questions, as they arise, relating to the value of shares, redemptions of mortgages, &c., shall be specially referred. That the report of the Auditors shall be countersigned by the Actuary, and shall be read at the annual meeting. That ——————— be appointed Consulting actuary at an allowance of £   a year.

XV. *Arbitration.*

160.—That in case of dispute arising between the society and any member thereof, or the legal representatives of any member, reference shall be made to arbitration, pursuant to 10 Geo. IV., cap. 56, sec. 27, unless such dispute can be amicably arranged by the directors and the member, or his legal representative, within fourteen days, from the time such disputed matter shall be formally brought before the board. At the first meeting after the enrolment of these rules, five arbitrators shall be elected by the members present, none of them directly or indirectly connected with the society; and in case of reference to arbitration, the names of all the arbitrators shall be written on separate pieces of paper, and placed in a box, and the three whose names are first drawn by the complaining party, or some one appointed by him or her, shall be the arbitrators to decide the matter in dispute, whose decision shall be final; provided always, that the award of the arbitrators shall be made within one calendar month next after a notice of the reference shall be given by the manager to each of the arbitrators appointed to adjust the matters in difference, unless a consent in writing be given to both parties to an extension of the time. Each of the arbitrators so drawn and attending shall receive a remuneration of one guinea; and the costs of the reference shall be paid as the arbitrators shall direct. The party requiring the arbitration shall deposit with the treasurer 50*s.* towards the arbitrators' remuneration.

XVI. *Officers.*

161 —That for the conduct of the business of the society, the following officers shall be appointed:—namely, three trustees, at most ten elected directors, a treasurer, consulting actuary, surveyor, solicitor, two auditors, and a manager.

XVII. *Qualification of Members.*

162.—That the holders of a share, half-share, or quarter-share, (advanced or otherwise) shall be deemed members, and, as such, be entitled to vote at all general meetings. Females and minors may be members, but shall not be eligible to hold any offices; nor shall minors, during

I

their infancy, be entitled to vote on any question, or be eligible to receive an appropriation of advanced shares.

XVIII. *Receipt of Subscriptions.*

163.—That all subscriptions for shares, advance-repayments, fines, and other monies whatsoever becoming due and payable to the society, shall be received only at the usual subscription meetings, during the hours of seven and nine o'clock in the evening, or at such other times as the board of directors may hereafter fix for that purpose. That all monies so received at such subscription meetings shall be delivered to the treasurer, and, on the following morning, be paid by him to the bankers of the society for the time being; and the book in which the entry of monies so paid, or the bankers' receipt in lieu thereof, shall on that day be deposited with the manager, who shall cause the same to be produced at the next meeting of the directors.

164.—That all subscriptions for original shares shall become payable monthly, in advance, from the first day of each month; and all repayments for advanced shares, retrospectively due, monthly or quarterly after the date of advance,—such dates to be restricted, as far as possible, to the first day of each month.

165.—That the Banking account shall be opened in the names of the trustees for the time being. That all cheques must be signed by at least one trustee, and countersigned by the chairman of the board of directors and the manager. That all payments exceeding five pounds be made by cheques on the bankers; and that for the payment of current petty expenses, the manager shall, from time to time, receive a cheque of ten pounds, which shall be duly renewed on a proper account of his former payments, to the amount of the last cheque received by him, being made to and allowed by the board.

XIX. *Mode of Voting.*

166.—That all elections and questions shall be decided by a show of hands, or by ballot, if demanded. No member to have more than one vote; and in all cases of equality of votes, the chairman shall have an additional or casting vote. But no member shall be allowed to vote on any question affecting his individual interest or conduct.

XX. *Dissolution of the Society.*

167.—That no dissolution of this society shall take place, unless its affairs be deranged, or its principles prove inadequate to promote its objects, or its funds be insufficient to meet the claims upon them, or from any other such cause, rendering the dissolution absolutely necessary, and then only in pursuance of the provisions of the Act 10 Geo. IV., cap. 56, sec. 26; and any member in any way attempting to promote a dissolution of the society, but for the causes before named, shall forfeit all his monies, benefit, and interest therein, and be forthwith expelled the same.

XXI. *New Rules and Alteration of Rules.*

168.—No rule herein contained, or any rule hereafter to be made, by virtue thereof, shall be altered, rescinded, or repealed, unless pursuant to 10 Geo. IV., cap. 56, sec. 9, at a general meeting, convened for that purpose; nor shall such new rule affect the fundamental principles of the society, but shall apply only to an explanation of the present rules, or to facilitating the operations of the society.

XXII. *Construction of Rules.*

169 —That in the practical application of these rules, or any rules hereafter to be made by virtue thereof, the construction put upon them by the board of directors shall be final and conclusive. That a word in the singular number shall be applicable to the plural; and the term "his" or "her" shall apply to a *female* as well as *male*, unless there be something in the subject matter or context repugnant to such construction.

XXIII. *Manager.*

170.—That ———, be appointed the manager of this society.

171.—That the manager shall receive whatever salary the directors may think proper, provided the same do not at any time exceed £   a year.

172.—That if the manager shall neglect to attend any meetings of the society at the time named for the commencement of such meeting, without shewing sufficient cause to the directors then present, he shall be fined five shillings. He shall enter minutes of all resolu-

tions in the rough minute book ; the same shall be fairly copied into another, to be read as part of the business of the next meeting ; and both to be signed by the chairman. He shall keep the accounts in order, in proper books to be provided for the purpose, shall send all circulars, and conduct all the correspondence of the society.

XXIV. * Trustees.
[* See page 73 for remarks relative to trustees.]

173.—That the trustees shall be *ex officio* members of the board of directors, but in no wise interested in the funds, effects, or property of the society, and that they shall continue in office during the pleasure of the board of directors. That in case the trustees first appointed, or any or either of them, or any future trustee or trustees to be appointed, as hereinafter provided, shall die, or be desirous of resigning, or be discharged from, or shall become incapable of acting in the trusts in him or them reposed by these rules, or be guilty of any gross neglect or improper conduct (of which the directors shall be the only judges), or shall remove from ————— to a distance of more than ten miles, or cease to have a place of business or residence in —————, so that the performance of their duties may become inconvenient to them, or that if a difficulty of access to them shall impede the business of the society, or if they shall become bankrupt or insolvent, the manager shall convene a special meeting of the directors, and the directors shall hear and determine thereon, and may thereupon remove such trustee or trustees; (ʰ) and as often as any new trustee or trustees shall be elected or appointed, the trustee or trustees so removed shall cease to be a trustee or trustees, and shall be incapable to act after such removal, or after the appointment of a new trustee or trustees shall have taken place ; and after every fresh appointment of a trustee or trustees, the resolution of appointment shall be signed by the chairman of the directors for the time being, or of the chairman of the meeting at which such appointment shall be made, and by two members and the manager, and the same shall be duly entered on the minutes of such meeting ; and the estates, monies, securities, funds, deeds, papers and property of the society shall at once become vested (without any assignment) in the continuing and newly appointed trustee or trustees ; or

should the trustee or trustees so resigned, incapacitated, or discharged, be out of the kingdom, or no means of communication can be had with him or them, then the removal of him or them by the board of directors, and the appointment of a new trustee or trustees in his or their stead, shall be likewise sufficient to vest all such estates, monies, securities, funds, deeds, papers, and property of the society, and all other matters pertaining thereto, in the continuing and newly appointed trustee or trustees. (i) In case of a vacancy of office from any cause whatever, by any trustee or trustees first appointed, or to be hereafter appointed by virtue of these rules, the appointment of a new trustee or trustees shall be made at the next monthly meeting by the members then present, providing a notice of such intended appointment can be sent to every member seven clear days before such meeting, or at the annual general meeting, if such vacancy take place within fourteen days previous to the same. (j) That all deeds, writings, and securities to and from the society, shall be made and taken in the names of the trustees or trustee for the time being, and shall be deposited with the bankers of the society, to be appointed by the directors, or with such other persons as they may deem fit, in a box furnished by the society. And no document whatever shall be allowed to be removed from such box, unless by an order of the board, signed by at least three members thereof then present. (k) The manager shall furnish to the trustees an inventory of the contents of such box, and retain a duplicate thereof for the use of the directors.

174.—In case it shall be necessary or expedient to bring or defend any action, suit, or prosecution, at law or in equity, touching or concerning the property or assets, rights or claims of this society, or touching or concerning the breach or non-performance of any of the articles, matters and things herein contained, or of the conduct of any member or officer of this society, the same shall be brought or defended by, or in the names or name of the trustees or trustee for the time being, and he, or they shall be indemnified from all loss or damage to be by him or them sustained in consequence thereof; but no such proceedings shall be taken or defended, until the approbation of a majority of the directors present at a special meeting, to be convened for that purpose, shall be first had and obtained. (l) The trustees for the time being may, at the request of the directors,

borrow and take up at interest any sum of money from any banker, or other person, as occasion may require, to procure which the trustees may give their own personal security, and they shall be indemnified in respect thereof out of the future receipts of the society. That the trustees or trustee for the time being, shall do no act in their official capacity, but by the written order of the board of directors, such order to be signed by the chairman of the meeting at which such order is made, and to be attested by the manager.

175.—That ——————————, be hereby appointed trustees of this society.

XXV. *Directors and Treasurer.*

176.—The elected directors shall be shareholders, one third of whom shall go out of office after the first two years, but be eligible for re-election. The future election of Directors shall take place at the annual general meetings, except in case of death during the year, when any vacancy shall be filled up by the board. (ᵐ) That if any director shall become bankrupt, be declared insolvent, or resign, his office shall become vacant, and if, during the year, the vacancy shall be filled up by the board, as in case of death. (ⁿ) The directors shall annually appoint, out of their body, a chairman, deputy-chairman, and treasurer; and, in the absence of either chairman or deputy-chairman, the directors shall appoint a chairman for the several meetings. That one of the directors (in rotation) with the treasurer and manager, shall attend the meetings for the receipt of money, within the hours specified in these rules, or at such other times as the directors may think fit.

177.—The qualification of a director shall be the holding of at least one *unadvanced* share. * Each director shall be paid 6s. 6d. for each attendance at an ordinary subscription meeting; and the chairman shall, in addition, be allowed 5s. extra. (ᵒ) That the Treasurer attending the receipt of subscriptions shall receive 5s. each time for his services.

178.—That the directors may divide themselves into rotas, or committees, for the conduct of the business, as they may think fit, (such

[* Instead of paying the directors monthly, the clause may be thus varied: " The members at an annual general meeting shall have power, with the advice of the society's consulting actuary, to vote a sum of money to be paid to the directors and officers for their past year's services."]

committees or rotas to be open to the other members of the board); provided, however, no rota shall continue longer than three calendar months at one time, without some change of members. That for the transaction of general business, three elected directors shall form a quorum. The Board shall meet at least twice every month, and the date and place of the last meeting having been read from the minute book, the bank book shall be exhibited, (or in lieu thereof, the bankers' receipt), and the amount deposited, since the last meeting, declared, and entered as the first minute. The Board shall, from time to time, inspect the books kept by the manager; and the directors, or three of them, shall have power to call a special meeting of the board at any time, by giving two clear days' notice, and stating the object for which it is called. In case the requisite number of directors shall not attend, the manager shall have power to adjourn the meeting to some other time. In case of equality of votes, the chairman shall have an additional or casting vote. No director shall be present during the discussion, or at the decision of any question affecting his own interest or conduct. Any director failing to attend his rotation at the receipt meetings, or to procure a substitute, shall pay a fine of 2s. 6d., or if he fail to be present within ten minutes after the appointed hour, he shall forfeit one shilling.

179.—That the Board of directors shall consist of trustees, and of not less than six, nor more than ten, elected members.

180.—That the Board of directors shall have power to appoint agents to receive applications for shares, and to pay them such compensation by way of commission on all shares introduced by them as the Board may deem fit.

181.—That the following gentlemen be directors of this society for the ensuing year, with power to increase their number within the before-mentioned limits :—namely, Messrs.———————————

XXVI. *Architect and Surveyor.*

182.—That ————————————, be hereby appointed architect and surveyor to this society.

*[With respect to a system of Fines adopted for neglect on the part of the Surveyor, the first question is, what right has the Society to impose them? The mere fact of the rules giving the power to fine, does not suffice until the

183.—That for every valuation and survey of property within three miles of —————————, the following fees shall be allowed :—

Where the sum advanced does not exceed £150, one guinea ; and above that sum at the rate of 10s. 6d. for each additional £100 borrowed.   And if the distance exceed three miles, but not more than ten miles, one shilling per mile (one way only) extra shall be charged ; where, however, any greater distance be required, such additional charge shall be allowed as shall be agreed upon by the board and the surveyor.

184.—In all cases where the architect and surveyor is required to supervise the erection of any buildings on behalf of the society, the remuneration shall be specially agreed upon by himself and the board.

XXVII. *Solicitor.*

185.—That —————, be hereby appointed solicitor to this society.

186.—That the solicitor shall transact all the legal, equitable, and conveyancing business of the society ; and if any dispute arise with reference to his charges, the case shall be referred to two members of the legal profession, one chosen by the board or member interested, and the other by the solicitor ; such referees, before proceeding to arbitrate, to appoint an umpire, in case they should disagree ; the award of such arbitrators or umpire to be final and conclusive.

XXVIII. *Removal of Officers.*

187.—That neither the solicitor, surveyor, consulting actuary, nor manager be removed from their respective offices, except for misconduct or inability ; and then only by a majority of at least three-fourths of the members present at a meeting specially convened for that purpose, and who, in case of a removal or resignation of such officers,

party to be fined has consented to be bound by them. The appointment of the Surveyor should therefore be made in writing, and be expressed to be under and by virtue of the rules of the Society ; and he should be required to accept the appointment on the same terms. Under such an appointment there would be no difficulty in enforcing the fines. Without it, or some implied agreement to be bound by the rules on the part of the Surveyor, the Society could not legally impose or enforce them.— *Thompson, on the Law of Benefit Building Societies.*]

shall authorise the directors to proceed to elect other and fit persons in his or their stead.

XXIX. *Indemnity to Officers.*

188.—That the trustees, directors, and all other officers of the society shall be, and are hereby, indemnified and saved harmless out of its funds and property, from and against all losses, costs, charges, damages and expenses, which they may incur or be put unto, in or about the execution of their respective offices, trusts, and services ; and none of them shall be answerable for any act or default of any other of them, or for the insufficiency or deficiency in the title or otherwise of any security whatsoever which shall be taken for the repayment of any advance, unless the loss, arising by such means, shall happen through their own neglect or default ; nor shall they be liable for any banker, broker, or other person with whom the trust monies shall from time be deposited for safe custody, investment, or otherwise, nor for any involuntary loss, misfortune, or damage whatsoever, which may happen in the execution of their respective offices, services, or trusts, or in relation thereto.

} *Members.*

Manager

SCHEDULE OF FORMS.

A

189.—To the Manager of the ——————— Benefit Building Society.

Sir,—I send you the following particulars of certain premises which I am desirous of purchasing, according to Rule IV., page 6.

Name _____

Address _____

No. of Certificate _____

Date _____

Situation and extent of property, number of rooms, extent of garden, &c.

Is the property freehold or leasehold ?

If leasehold, the number of years unexpired ?

If original lease, underlease, or assignment of lease ?

Ground rent per annum ?

When payable ?

To whom, name and address ?

Taxes, rates, &c., their amount respectively ?

Does the tenant or landlord pay the rates and taxes ?

Insurance, date of payment, name of office ?

Gross rental per annum ?

If unoccupied, what is the fair rent ?

Is the rental paid weekly, monthly, quarterly, or held on lease ?

Amount of advance required ?

Is the property subject to prior mortgage ?

If so, to what amount ?

Is the applicant solvent ?   Ever been bankrupt ?

Is the applicant free from any judgment or other encumbrance likely to effect his real estate ?

Is the title good of such premises ?

Have any of the covenants in the lease been violated ?

B

To the Manager of the ———— ———— ———— Benefit Building Society.

SIR,—I send you the following particulars of certain buildings which I am desirous of erecting,

Name _____

Address _____

No. of Certificate _____

Date _____

Description of building, to be accompanied with plans.

Where to build ?

Leasehold or freehold ?

Ground rent per annum ?

Covenants of lease ?

Amount required ?

By what instalments, and how often ?

Has the applicant ever been bankrupt or insolvent, or has he any encumbrance registered so as to affect his estate ?

C

To the Manager of the ———— ———— ———— Benefit Building Society.

SIR,—I send you the following particulars of freehold land which I am desirous of purchasing.

Name _____

Address _____

No. of Certificate _____

Date _____

Description and extent of property.

Where situate,—parish, county, &c ?

The value per annum ?

By whom is the land held ?

To what use is the land to be applied by applicant ?

D

Receipt to be endorsed on mortgage security.

We, the undersigned, the trustees for the time being of the within-mentioned —————————— Benefit Building Society, do hereby acknowledge to have received of and from the within-named ——————— his heirs, executors, administrators, and assigns, all monies intended to be secured by the within written deed.

As witness our hands this —— day of ————— 18—.

E

Form of transfer.

I, ——————————, one of the members of the ———————————— Benefit Building Society, in consideration of ——————— paid to me by ——————— , do hereby assign and transfer ——————————, to the said ———————, his (or her) executors, administrators, and assigns, subject to the payments, rules, and regulations, prescribed by the society. And I, ——————————, sanctioned by the board of directors, do hereby agree to accept the said share (or shares) subject to the same payments, rules, and regulations.

As witness our hands and seals, this —— day of ————— 18—.

Barrister's certificate.

190.—I hereby certify that the foregoing rules are in conformity to law, and with the provisions of the statute 6 and 7 Wm. IV., cap. 32.

The Barrister-at-Law appointed to certify
rules of savings' banks.

London, 24th June 1848.

Copy kept, pursuant to 9 and 10 Vict., cap. 27, sec. 12.

Actuary's certificate.

191.—I hereby certify that the rules and rates of the ———————————— Permanent Benefit Building Society are founded upon equitable and sound principles, and may safely be adopted for its use.

Actuary.

CHAPTER VIII.

ON LIFE OR FIDELITY ASSURANCE APPLIED TO
BENEFIT BUILDING SOCIETIES.

SECTION I.

As regards Borrowing Members.

ART. 192.—There remains one circumstance in connexion
with the operations of Building Societies, which more particu-
larly deserves the serious consideration of those members, who
have borrowed money for the purpose of purchasing a house
or other property. It has been explained that, when an
advance is obtained by a member, a mortgage of the property
purchased with it is given by him to the society, for a specified
number of years, as security for his making, during that time,
certain fixed periodic payments, by which the loan is to be
repaid with interest.

If the borrower survive the term of his mortgage and
complete the redemption of his property, he will, in most
cases, have thus secured an unincumbered provision for his
family, and all is well. But if he die before this satisfactory
result is attained, unless his successors can continue the re-
demption payments, for whatever number of years remain in
the agreement, the Building Society is under the necessity of
foreclosing the mortgage and reselling the property, in order
to recover the remainder of the debt. The late borrower's
family, consequently, find themselves suddenly deprived of a
provision on which they had calculated ; and whatever sum
they may recover from the sale of the house, after complete

payment of the society's claims, it would, under such circum-
stances, be but small in comparison with the advantage, which
had naturally been expected by them before his death.

This difficulty in the position of the borrower can only be
surmounted by the application of Life Assurance, which alone
affords the certainty of monetary payments adapted to the
contingencies of human life. It is exactly one of the cases
that Life Assurance is specially prepared to meet. The con-
tingency to be provided against being:—the chance of a given
life dying before the expiration of a given number of years.

Were the borrower's debt to remain undiminished until the
end of the specified time, and were that time a *fixed* number
of years, then by taking out an ordinary *Temporary policy* on
his life for that period, equal to the amount of his debt, he
would secure the necessary sum payable to his family in the
event of his decease at any intermediate time. But, in con-
sequence of the claim on the property diminishing every year,
and in fact every month, the policy can, at the option of the
assured, be made of such a kind as to adapt itself to the
decrease, in various ways more advantageous to him, and
suited to each particular case.

To persons unacquainted with life assurance transactions,
it may be explained that policies are generally denominated
whole-life or *temporary*. If the policy be effected for the
whole of life, the assurer pays, during that time, a certain
annual premium, varying with his age at entry, in considera-
tion of which the company undertakes to pay the amount
assured, whenever his death takes place; so that, some day or
other, his family are sure to be thus benefited. In *temporary
policies*, the society merely guarantees the payment of the
amount assured, provided the assurer die within the number
of years for which it is taken out. As, however, the risk of
the assurance company from the chance of such an event is,
for most ages, considerably less than in whole life policies, the
temporary annual payments are also considerably smaller.

But, on the other hand, if the person assured *survive* the period for which the assurance was effected, he receives from it no further benefit beyond the satisfaction which he may have experienced during the past, arising from the certainty that his family has been completely protected during the then existing chance of loss.

Before examining the various modes of assurance which have lately been suggested, we may remind the reader that, in the preceding sections of this work, it has been explained, that in most terminating societies there exists considerable unwillingness on the part of the directors to allow the redemption of mortgages, from the great inconvenience which arises in the latter years of a society, if a sum of money be returned on its hands, for which a *re-investment* may not be easily found. If, therefore, in consequence of the death of a borrower, or from any other cause, a redemption be permitted, it is required to be on such terms as will secure the association from loss; and the amount which, according to the rules of compound interest, would be considered a fair composition for the remainder of the debt of a deceased borrowing member, might not always be accepted as sufficient by the directors, who would have to take into account the loss of interest likely to be produced by the absence of re-investment for the money returned; which loss, if not obviated, must prevent the realisation of the results anticipated in their fundamental calculations.

This practical difficulty, among others, renders it impossible for a borrower to know, beforehand, the precise sum, which might be required from his family, after his death, for the redemption of his mortgage; although, of course, he would be justified in expecting that it would be less than the amount originally borrowed. Again, another obstacle to the accurate determination of a borrower's liabilities arises from a circumstance peculiar to the mortgages effected in terminating societies, caused, as we have before mentioned, by the special

provision, that the payments of the members shall not ter-
minate, until the promised amount of each of the *unadvanced*
shares held by non-borrowing members has been realised;
and that, if from any cause there exist a deficiency in the
accumulated funds of the association at the end of the specified
term of its existence, all the subscribers, borrowers as well as
non-borrowers, shall continue to make their payments, and
the mortgages on property shall remain in force, for the
necessary additional time, of which the duration cannot be
calculated until the deficiency is discovered.

In *permanent societies*, these obstacles to the ready appli-
cation of life assurance do not exist, as they are free from
the practical objections above quoted; and in some instances
also of the *terminating* societies, where they are formed on
accurate and sound principles, arrangements can be made, by
which a borrower may avail himself of the advantages offered
by life assurance. In the present confused state of the affairs
of most of the existing associations of this kind, it is impos-
sible, of course, to offer any advice on the subject, which can
meet each individual case; but attention may be drawn to
several plans prepared by some of the well-established assur-
ance companies.

These plans appear to be of two kinds:—either the policy
secures a *single* sum of money, to be paid at the death of the
assured, and sufficient to clear off the debt; or the assurance
company undertakes to *continue the subscriptions* of the bor-
rower after his decease, until the period of the expiration of
his mortgage.

In the first plan, *three varieties of policy are suggested :—*
First, that the borrower, if he can afford it, should effect
an assurance, equal to the amount of his loan, by a *whole life
policy*. He thus, not only makes his family secure during
the period over which his mortgage to the society extends,
but, in the event of his surviving, also creates a further pro-

vision for them, payable at whatever subsequent time his
death may occur.   This plan is undoubtedly the most advan-
tageous for his family, but it is generally found too expensive,
as the borrower, in most cases, finds it nearly as much as he
can manage, with his limited means, to pay his share sub-
scriptions.   The *Half-premium* system for seven years might
be useful, by which only half the whole rates are charged for
that term, the remainder standing over as a small debt upon
the policy.

Secondly.—It is proposed that he should effect a *temporary
policy* on his life, which shall commence at the time he
obtains the advance, and be equal to the amount thereof.
The term of its existence also to be equal to (or perhaps, if
thought safer, a few months longer than) the number of years
over which the mortgage is expected to continue.   It is then
arranged, that at the end of each year the assurance company
should allow him to diminish the amount of his policy, by
a sum equal to the diminution effected in his debt to the
Building Society, during each *past* year ; thus maintaining it,
nevertheless, large enough to meet its purpose during each
coming year.   By this arrangement the annual payments
would of course receive a corresponding diminution, and the
amounts, by which the policy is to be reduced from time to
time, would be left undetermined, and at the will of the
assured, in consequence of the impossibility of his ascertaining,
beforehand, the sum which might be required, in the course
of the society's existence, to pay off the remainder of his loan
in the event of his death ; and, although the extent of his
debt at the *close* of each year, depends on practical contin-
gencies, undeterminable by theory, yet it is in the power of
the assurer to ascertain the correct amount, relatively with
the actual circumstances of a Building Society, by applying
annually to the manager ; moreover, as the rates of premium,
on policies of this kind, diminish every year, they become

rapidly very small, and appear to be within the reach even of persons of very limited incomes.

193.—*Thirdly.*—Some Life Assurance Societies have offered to issue *temporary policies,* diminishing by an unvarying *fixed* amount every year; the rates of premium decreasing accordingly.

For example:—Suppose that in a 10-years Building Society a member has borrowed £300,—he is recommended to effect a temporary policy for £300, for the period of 10 years, diminishing by the fixed reduction of £30 a year.

This plan, however accurate in principle as a mere life-assurance question, is not at all applicable to the case of mortgages from Building Societies, whether examined theoretically or in its practical bearings: for the policy, during more than half the period of its existence, would be insufficient to cover the debt.

When it was first put forth, two or three years ago, by the life assurance companies alluded to, its unsoundness was very ably proved by some of the periodicals which treat of these subjects, although not with the complete success of causing the directors to suspend its detrimental action. As, however, the subject is one of considerable importance, on account of the loss and future injury entailed on persons, who may be tempted to assure from the simple form and apparent cheapness of the policies, we shall here examine it by an example :—

A man borrows £300 from a Building Society which is expected to terminate in 10 years, and whose shares are £120 each,—for this loan he requires 5 shares, supposing the present value of each share to be £60, and he has to pay a monthly subscription of five times 14s., or 3l. 10s., in all £42 a year. To secure the family of the borrower from liability, in case of his death before the expiration of the ten years, the assurance society recommends him to effect a temporary policy of assurance for ten years on his life, according to a

K

scale given in their prospectus.   By this scale the amount of
the policy is diminished £10 per cent. every year, so that—

If the borrower died between the beginning and
    end of the 1st year, the policy would secure the
    payment of £300
If he died between the beginning and end of the
    2nd year, the sum payable would be............... 270
Within the 3rd year 240
4th year 210

And so on, diminishing £10 per cent. annually—the diminu-
tions in the policy taking place at the *end* of each year.

To this circumstance attention must be given, as the object
of these remarks is to prove, that the amount so secured, pay-
able in the event of the death of a borrower, is not sufficient,
the fixed diminution in the amount of the policy being too
great during the first half of the years of existence of the
policy and the debt to the building society.   It has been
explained in Chapter III., that the rate of interest involved
in the calculations of a building society such as this, is 7 per
cent , so that the current account of the borrower relative to
the society will stand thus :—

First year—Principal or debt £300	0	0
Interest at 7 per cent........................ 21	0	0
Total 321	0	0
Deduct paid. 42	0	0
Leaving a balance due at the end of the ———————		
1st year 279	0	0
Second year.—Interest 19	10	0
Total 298	10	0
Deduct paid................................... 42	0	0
Balance of debt at the end of 2nd year... £256	10	0

And so on, year by year, the balance due can be annually ascertained. The fact of the payments being *monthly* instead of annual will not materially affect the results.

Now, if the amount of the debt at the *end* of each year be compared with the corresponding remaining amount of the policy, it is seen that, at the end of the first year, the former amounts to £279, while the latter is only £270, being too small by £9 to meet the debt. Similarly at the end of the second year the policy is deficient by 16*l*. 10*s*. 0*d*., and so on during more than the first half of the debt; hence, although as far as the assurance companies are concerned, policies may be safely granted, decreasing every year by the same fixed sum, yet they are evidently inapplicable to the case of the borrowing member of a building society, who ought himself to have the power of determining, year by year, the amount by which his policy is to be diminished.

194.—The *Second System* of life assurance adapted to the requirements of a borrower in a Building Society, by which, in the *event of his death, the Assurance Company takes his place, and continues his monthly subscriptions*, we suggested in consequence of the strong objections which exist to the effecting of life policies for *single* sums of money, from the practical difficulties, that constantly arise, in the equitable adjustment of the remaining amount, which the Building Societies are entitled to claim in repayment of a debt.

In the policy recommended in their stead, the assurance office undertakes, *in consideration of a fixed diminishing, (or, under certain conditions, equal,) annual premium, paid to it by the borrower, to continue, from the time of his decease, the monthly subscriptions for which the house or property is liable, until the mortgage is cleared off.* The term of the annuity is taken as ending with the year, in which the society (if terminating) is expected to close, or for a few years longer. This

plan, which has been adopted under the name of the " *Gua-rantee temporary annuity policy*," appears to offer additional security to the Benefit Building Society, at the same time that it renders the family of the borrower entirely free from liability or trouble of any kind.

To illustrate the application of the diminishing payment, we will take the same example as before :—Suppose a person aged 30 borrows, in order to purchase a house, £300 at the commencement of a Building Society, which is calculated to close in 10 years, and whose shares are £120. He requires for this loan 5 shares, and has to make during the 10 years an annual payment of £42.

Now, if the borrower die before the 10 years are expired, the house is liable to be seized for the remainder of the mortgage unpaid, unless his family can continue the monthly instalments,—but if he effect, at the same time with his loan, a guarantee temporary annuity policy on his own life for 10 years, securing the annuity of £42 a year, or 3*l*. 10*s*. monthly, payable in case of his death, from that event until the expiration of the 10 years, his family is rendered free from any liability by a comparatively small annual outlay, which at his age 30 is as follows : *viz.*

			£		
1st year's payment		....	£5	0	0
2nd	,,	....	4	7	1
3rd	,,	....	3	19	2
4th	,,	....	3	10	5
5th	,,	....	3	1	8
6th	,,	....	2	12	1
7th	,,	....	2	2	11
8th	,,	....	1	12	6
9th	,,	....	1	2	1
10th	,,	....	0	11	3

From this it is seen that if, for example, the party die in the 4th year, he will have purchased an annuity of £42 a year

for the 6 remaining years, by four payments amounting to 16*l.* 16*s.* 8*d.*

It is evident the principle of such assurances is the same whether the payments of the Building Society are 10*s.* a month during fourteen years, or any other amount ; and it matters not whether the loan be effected at the commencement, or in any other year of the existence of a Building Society. All that the borrower has to consider is the amount of his annual payment, and the number of years he expects they will run over : with these facts he can ascertain what premium and what amount of policy will suit his purpose.

195.—The principle of making the *annual premiums diminish* annually with the risk, to which the assurance company is exposed, is obviously the correct one, and it has been since widely adopted ; but, in order to meet the requirements of the industrious classes, the policy is frequently desired at an *average equal* premium, so as to lessen the heavy expense at first. This, without some limiting condition, is disadvantageous to the office, and yet it has lately been undertaken by some assurance companies. For instance : one of the prospectuses states that a reversionary temporary annuity of £10 will be guaranteed, in case of the death of a person aged 30 before the end of 10 years, in consideration of the equal annual premium of 13*s.* 10*d.* a year, and that at the age of 35 the same annuity, for 5 years, may be obtained for 8*s.* a year.

A few words will suffice to point out the error of such an arrangement. In charging the *same annual payment* throughout the duration of a *diminishing* risk, the office is virtually substituting for payments, which ought to diminish year by year, their average amount.   Thus, by the rates above given, the borrower aged 30, might assure the reversionary temporary annuity of £42 a year for 10 years by an invariable annual premium of 2*l.* 18*s.* 2*d.* payable throughout the term of the assurance.   It is obvious, therefore, that during the *first half of the existence of the policy,* or the first five years, the office

is receiving a premium much *too small*, to be in proportion
with the risk incurred (which can be seen by comparing it
with the rates in the example before given of *diminishing*
premiums), and *during the second half* of the period, the
converse takes place.

If the assured then die in the first half, the life office must
experience a serious loss, since it will have to pay an annuity
for the remaining number of years, towards which it will
not have received an adequate amount of premium.   And if
he *survive* the first half of the period, it is clear that a direct
incentive is offered to him at once to drop his assurance,
because the premium he would have still to pay exceeds the
advantage yet offered by the policy in case he should die
during the remaining half of its existence ; for, in the re-
maining 5 years the annual premium securing £42 a year is
still 2*l*. 18*s*. 2*d*.   But the same prospectus which we have
quoted above states, that at 35 (his then age when 5 years
have elapsed) a reversionary annuity of £10, can be purchased
for 8*s*. a year, or the borrower can take out a new policy,
securing £42 a year for 5 years, by an annual payment of
1*l*. 13*s*. 8*d*.   In other words, supposing the borrower *survive*
the *first* five years, he would find that by dropping his old
policy, and taking out a new one, he could effect an *annual*
saving of 1*l*. 4*s*. 6*d*.; a matter of some consideration to persons
whose means are limited.

Hence, the plan of an unvarying annual premium during
several years exposes the society to loss, and then holds out
an inducement to the assurer to abandon his policy, as he may
effect another at rates considerably reduced for the remaining
term of his mortgage, a circumstance which it would be idle
to expect him to overlook.

196.—The simplest mode that we can suggest of obviating
this practical difficulty would be to charge for the *first* year a
larger premium, than for the remainder of the term :—Such
as two years' payments to be made in advance on taking out a

policy. For example: The first payment would be 5*l.* 16*s.* 6*d.* and the 8 remaining premiums each 2*l.* 18*s.* 4*d.*   The policy being still for 10 years.

197.—In preparing tables on the above system for the assurance of a diminishing risk, it has perhaps been imagined that, because the analytical investigation produced a correct mathematical formula, by which the premiums could be calculated, it would still be sound if applied to practical purposes. Such is far from being the case in this instance, or, indeed, in many others of a similar kind ; and a neglect of sufficient examination of the effect of practice applied to theory is probably the cause of the many unsound features of Life Assurance, which, from time to time, are met with in the prospectuses of different companies.

Section 2.

Life Assurance applied to Investers.

198.—The preceding plans of life assurance have all had reference only to the requirements of *Borrowers* in Benefit Building societies.   The advantages to be derived from its application can, however, be extended in a most beneficial manner to the *Investers* or non-borrowers, in such associations as are formed on the permanent principle suggested in Chapter IV, according to which an invester pays a certain monthly subscription for a given number of years, and, at the end thereof, receives the amount of the shares he holds.

If he *die* previously, his family are entitled to claim from the building society merely the amount of his past subscriptions and whatever interest may be due upon them, according to the regulations usually contained in the rules.

Now it is possible, supposing the shareholder to be an insurable life, to make his shares payable in full, at the *end*

of the specified term of years if he is alive, or *sooner* to his family, in the event of his previous death. In the specimen of a permanent society given in Chapter IV, it is stated, that by the payment of 13 shillings monthly for 10 years, an invester can realise a share of £100 to be received at the end of that time. If the principle of temporary life assurance be applied, which can be done with safety in a permanent Benefit Building society, the members of which increase in number every year, it is found that, in consideration of a mere trifle extra per month (at some ages even less than one shilling per cent.) in addition to the 13 shillings, the Building society itself would be able to undertake to pay at once to the family of a non-borrowing member his share in full, should he die before the 10 years have expired. Such an arrangement would be a most important boon to the industrious classes, whose families suffer greatly from the pecuniary loss occasioned by their unexpected death. And by a careful medical examination of the parties proposing to avail themselves of this privilege, and by a resolute rejection of all objectionable lives, the society might with great safety undertake the risk of a member dying in the space of 10 years, or a similar short term.

199.—In the presence of the existing Act of Parliament respecting these associations, by which their action is much restricted, and in the absence of all superintendence on the part of government over their financial and general operations, the plan above suggested cannot be adopted; nor would it be prudent to do so, even if the act permitted this or other modifications in their system, until some regulations are enforced to act as a check to the practical errors, which daily arise in the working of many of these societies. But it is probable that a permanent Benefit Building society of unexceptionable respectability might secure the co-operation of a Life assurance office, which would undertake the risk. In any case, it is greatly to be desired, that, if ever the other

objections and deficiencies in the Act undergo revision, some step will be taken for introducing, as far as may be practicable, into their operations the important benefits of Life assurance. Should that be done, to make the application equitable, the system of Life assurance adopted *by the Building society* should be strictly *mutual;* otherwise, the limited membership of the subscribers, in a permanent association, would deprive them of a fair participation in the Profits, which would probably accrue to the later members.   There would arise no unnecessary risk therefrom, any more than in an ordinary Mutual Life office ; and even the extra risk contingent upon the first few years might easily be averted by the purchase, at a small per centage, of the Temporary protection of an established company. In general the mutual principle is also recommended, because it must be considered as combining all that was wanting to make Life Assurance perfect ; inasmuch as it removes the only selfish objection to which that beneficent invention of science was formerly open : *viz.,* that those, who *live,* pay for those who *die* beforehand ; since the periodical allotments of Bonus, if calculated upon safe principles, tend continually to restore the balance of advantage to those members, who survive each division of Profits.

Building Society shares as security for Fidelity in situations of Trust.

200.—Instead of making the shares payable at *death,* in the event of a member's dying before the completion of his subscriptions, another valuable modification might be introduced.

In consideration of a small extra payment beyond the monthly share subscriptions, the members of the Building society might *mutually guarantee the fidelity of each other,* if employed in situations where such security were required. Provided always, that, previously to affording such a guarantee to a member, due care were taken to make strict enquiry respecting his past and present character.

The rates of contribution for Fidelity assurance may be ascertained from statistical data, which can be rendered as complete as the corresponding data representing the laws of mortality; and it is plain that the payments of a member might be so combined, that the amount of a share could be made payable, at the end of the given number of years, to himself or his family, if

he continued honest ; at the same time that it might be made payable to his employer for the time being, in case he should, in the mean time, commit a breach of trust ; in which latter case he himself would forfeit all claim upon the society.

201.—Guarantee societies have been established within the last few years solely to obviate the defects of suretyship by private bondsmen, a practice which was found to be attended with various inconveniences and objections;—instances having constantly occurred in which persons of great respectability were obliged to forego excellent situations, from either the great difficulty of obtaining security, or a repugnance to place their relatives or friends under the obligations involved therein. A Fidelity society, commonly called a Guarantee society, undertakes, on the annual payment of a small sum, to make good, in case of default by fraud or dishonesty, any losses which may be sustained to an amount specifically agreed upon ; and by such means obviates the necessity for private sureties as well as the obligations arising therefrom, which often prove as prejudicial to the best interests of the employers as to the employed.

To the employer the guarantee of such a society is much more valuable than the bond of any individual, inasmuch, as it is not liable either to doubt or depreciation. In large establishments, both public and private, where the securities are numerous and the sureties often resident in many different parts of the country, and known only by repute, it becomes almost impossible to watch over their continued existence and solvency ; and cases of default have frequently occurred when, upon investigation, it has been found that all the sureties have been dead or gone away for many years.

By these means, security has been provided only for the fidelity of the employed : but the plan of a Guarantee society is still defective, in consequence of its being considered virtually not to offer a sufficient discouragement to dishonesty. It has been felt that a pure Fidelity-policy does not even, in point of morality, possess the advantage afforded by private suretyship,—inasmuch as the son, to whose nature it would be repugnant, by his misconduct, to bring disgrace and ruin upon his relations or friend, might feel little anxiety as to the pecuniary less inflicted upon a guarantee society. In other words, it is conceived that a disposition to fraud is not effectually checked,—the reflection arising, that as the rates of a guarantee society pre-suppose the existence of such a disposition on the part of, at least, one out of every two hundred of its selected assurers, the loss sustained by the society through such defalcation would be but the result of the "Average."

202.—In the plan here suggested, which would be equally applicable, if not more so, to a Life Assurance or other Investment society, the subscribers, while satisfying the requirements of their employers in respect to their honesty and good conduct, would receive an additional stimulus from the reflection, that all their subscriptions would become forfeited in the event of their acting dishonestly. Hence, the greatest moral benefits might be expected, as the members of such an association would serve as a mutual check on each other. A new incentive to honesty would be gained; and while a sum of money would guarantee the fidelity of the Invester, the mere fact of his admissibility to such an assurance would be a strong testimonial to his character. At the same time various practical regulations would, of course, be requisite to secure the judicious working of this suggestion.

On the joint combination of Life and Fidelity Assurance in co-operation with the ordinary principles of Building Societies.

203.—The methods of Life assurance and Fidelity guarantee suggested above, may be either adopted *separately* for the convenience of different members of the same society, or *combined* together in such a manner, that, while on the one hand, a non-borrower might subscribe, with the view of receiving his share in full at the end of a given term of years; yet, in the event of his *previous death* or committing a *breach of trust,* the amount of his share might be made payable to his family or to his employer, whichever happened to be the case.

In the system of a permanent building society, combining the three advantages alluded to, the rates of monthly subscription per share can be calculated, so as to enable the association with safety to undertake the payment of an invester's share in full at the end of the specified term of years, if he be alive; at the same time, that the same amount of share would be payable to his family in the event of his previous death, or to his employer should he commit a breach of trust. Great care being taken, of course, to examine his state of health, to see that he is a sound life, and to ascertain that his past and present moral character is free from stain or reproach.

204.—The adoption of the important considerations, which form the subject of the latter articles of this chapter, would necessarily introduce some complication into the affairs of a Building society; but it should be borne in mind, that the scope and consequent prosperity of all institutions of this kind depend upon the variety of the cases, to which their provisions are adapted; and that, while a society might offer all, or any of, the advantages we have enumerated to those among its members, whose situation might render them desirable, there is no reason why the adoption of either guarantee or life assurance should be made compulsory on other members, who have no occasion for them. One man may wish to assure his life; another may stand in need of security for his honesty; a third may require both the one and the other; and a fourth may be so circumstanced as to have no occasion for either. The several cases we have supposed are, in reality, those not of individuals but of separate classes, to each of which the same society may offer the advantage suited to their own peculiar requirements, and, by thus multiplying its members, increase its stability and diffuse its benefits.

[The suggestions, advanced above respecting the *Combination of the risks of Life and Fidelity Assurance* in one Policy, have been recently adopted (without reference to the Building Society question) by several new Companies, which have been formed specially for that object.]

CHAPTER IX.

THE ACT FOR THE REGULATION OF BENEFIT BUILDING SOCIETIES. 6 & 7 WILLIAM IV. Cap. 32. 14th JULY, 1836.

With observations and legal decisions.

ART. 205.—WHEREAS certain societies, commonly called Building Societies, have been established in different parts of the kingdom, principally amongst the industrious classes, for the purpose of raising by small periodical subscriptions a fund to assist the members thereof in obtaining a small *freehold or leasehold property ;* and it is expedient to afford encouragement and protection to such societies and the property obtained therewith. Be it, therefore, enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal, and Commons, in this present Parliament assembled, and by the authority of the same. That it shall and may be lawful for any number of persons in *Great Britain* and *Ireland* to form themselves into and establish societies for the purpose of raising, by the monthly or other subscriptions of the several members of such societies, shares not exceeding the value of one hundred and fifty pounds for each share, such subscriptions not to exceed in the whole twenty shillings *per* month for each share, a stock or fund for the purpose of enabling each member thereof to receive out of the funds of such society the amount or value of his or her share or shares therein, to erect or purchase one or more dwelling house or dwelling houses, or other real or leasehold estate to be secured by way of mortgage to such society, until the amount or value of his or her shares shall have been fully repaid to such society with the interest thereon, and all fines or other payments incurred in respect

Societies may be established for the purchase or erection of dwelling houses.

thereof, and to and for the several members of such society from time to time to assemble together, and to make, ordain, and constitute such proper and wholesome rules and regulations for the government and guidance of the same as to the major part of the members of such society so assembled together shall seem meet, so as such rules shall not be repugnant to the express provisions of this act and to the general laws of the realm, and to impose and inflict such reasonable fines, penalties, and forfeitures upon the several members of any such society who shall offend against any such rules, as the members may think fit, to be respectively paid to such uses for the benefit of such society as such society by such rules shall direct, and also from time to time to alter and amend such rules as occasion shall require, or annul or repeal the same, and to make new rules in lieu thereof, under such restrictions as are in this act contained ; provided that no member shall receive or be entitled to receive from the funds of such society any interest or dividend, by way of annual or other periodical profit upon any shares in such society, until the amount or value of his or her share shall have been realized, except on the withdrawal of such member, according to the rules of such society then in force.

Bonus, &c, not to be usurious.

II.   And be it enacted, That it shall and may be lawful to and for any such society to have and receive from any member or members thereof any sum or sums of money, by way of bonus on any share or shares, for the privilege of receiving the same in advance prior to the same being realised, and also any interest for the share or shares so received or any part thereof, without being subject or liable on account thereof to any of the forfeitures or penalties imposed by any Act or Acts of Parliament relating to usury.

Rules may be made to provide forms of conveyance, &c.

III.   And be it further enacted, That it shall and may be lawful to and for any such society, in and by the rules thereof, to describe the form or forms of conveyance, mortgage, transfer, agreement, bond, or other instrument which may be necessary for carrying the purposes of the said society into execution; and which shall be specified and set forth in a schedule to be annexed to the rules of such society, and duly certified and deposited as herein-after provided.

IV. And be it further enacted, That all the provisions of a certain Act made and passed in the tenth year of the reign of His late Majesty King *George* the Fourth, intituled, *An Act to consolidate and amend the Laws relating to Friendly Societies*, and also the provisions of a certain other Act made and passed in the Fourth and Fifth years of the Reign of His present Majesty King *William* the Fourth, entitled, *An Act to amend an Act of the tenth year of his late Majesty King* George *the Fourth, to consolidate and amend the Laws relating to Friendly Societies*, so far as the same, or any part thereof, may be applicable to the purpose of any Benefit Building society, and to the framing, certifying, enrolling, and altering the rules thereof, shall extend and apply to such Benefit Building society and the rules thereof, in such and the same manner, as if the provisions of the said Acts had been herein expressly re-enacted.

Provisions of Friendly Society Acts of 10 Geo. 4 c. 56, and 4 & 5 W. 4, c. 40, extended to this Act.

V. And be it further enacted, That it shall be lawful for the trustees named in any mortgage made on behalf of such societies, or the survivor or survivors of them, or for the trustees for the time being, to endorse upon any mortgage or further charge given by any member of such society to the trustees thereof for monies advanced by such society to any member thereof, a receipt for all monies intended to be secured by such mortgage or further charge, which shall be sufficient to vacate the same, and vest the estate of and in the property comprised in such security, in the person or persons for the time being entitled to the equity of redemption, without it being necessary for the trustees of any such society to give any reconveyance of the property so mortgaged, which receipt shall be specified in a schedule to be annexed to the rules of such society, duly certified and deposited as aforesaid.

Receipt endorsed on mortgage to be sufficient discharge without reconveyance.

VI. Provided always, and be it further enacted, That nothing herein contained shall authorize any Benefit Building society to invest its funds, or any part thereof, in any savings bank, or with the Commissioners for the reduction of the national debt.

Not to authorize investment of funds in Savings Bank.

VII. And be it further enacted, That all Building
Benefit of Act to extend to all societies established prior to June, 1836. societies established prior to the first day of *June*, One thousand eight hundred and thirty-six, shall be entitled to the protection and benefits of this Act, on their present rules being duly certified and deposited as directed by the said recited Acts ; and no such society shall be entitled to the benefits of this Act until their rules shall have been so certified and deposited ; and that no such society shall be required to alter in any manner the rules under which they are now respectively governed.

VIII. And be it further enacted, That no rules of
Exemption from stamp duties. any such society, or any copy thereof, nor any transfer of any share or shares in any such society, shall be subject or liable to or charged with any stamp duty or duties whatsoever.

IX. And be it further enacted, That this Act shall
Public Act. be deemed a Public Act, and shall extend to *Great Britain, Ireland,* and *Berwick-upon-Tweed ;* and be judicially taken notice of as such by all judges, justices, and other persons whatsoever, without the same being specially shown or pleaded.

General Observations.

206.—The preceding Act contains many imperfections, which may be stated briefly thus :—

I. The limit of the shares is fixed, without any apparent cause, at £150, and of the subscriptions at £1 per share per month, although, as far as the members are concerned, the correctness of the ratio of their subscriptions to the amount of the shares is all they have to do with ; and there is no reason, why the amount of the shares should not be at discretion, provided the subscriptions are fixed in corresponding proportion.

Some doubt has arisen as to whether it may not have

been intended by the Act that a member's interest in a society should be limited to £150; but this seems improbable, as in that case no society would be of any practical service, since it would scarcely enable a member to purchase a house by means of an advance. For, in general, the greatest present value advanced on shares of the amount of £150 in terminating societies would be only £75 or £80, and with so small a sum scarcely a hovel could be purchased.

In the case of Morrison *v*. Glover, 19 Law J. Rep. (N.S.) Exch. 20, 21 Nov. 1849, it was held that a member may hold more than £150 worth of shares.

207.—There is no provision in the Act for societies *borrowing money*; and, although the Registrar, until lately, has certified Rules with such a power; yet it has been considered that it was not the intention of the legislature that societies should pledge the credit of their members for money bor-orwed, even for the extension of its business.

There is no reason, however, why the shares of the same society should not be of various amounts; and the following clause, which we have prepared, enables Deposits to be received, whereby loans would be rendered unnecessary:—

" The shares shall be of the ultimate value of £   each, realizable by a monthly payment of   , and of such other amounts, and realizable in such periods of years, and in consideration of such single or periodic payments, as the Board of Directors may, from time to time, deem fit."

It will be observed that the deposit receipts, being in the form of Paid-up or Realized shares, the restriction of Section 1 of the Act, Art. 205, as to the payment of dividends, is met.

By way of example:— Suppose £25 to be tendered to a Building Society on deposit for the term of three years at $4\frac{1}{2}$ per cent. interest, the Society would issue a Paid-up Share Receipt for £25, reciting that it was withdrawable at the end of the agreed period, but bearing interest in the meanwhile at $4\frac{1}{2}$ per cent. by way of Bonus.

208.—By the words "freehold or leasehold property, or other real estate," inserted in the introductory part of this statute, it follows that copyhold property, which is comprehended in the term "real estate," may be acquired and enfranchised through the instrumentality of Benefit Building Societies. We recommend our readers to examine the plan, which we have devised for the *Enfranchisement and improvement of Copyhold and Church leasehold* property, by the formation of Copyhold Enfranchisement Societies, registered under the Building Society Act. (See Division III. of the Treatise, new edition, advertisement at back of cover of this work.)

209.—*Mortgages to a society are free from Stamp Duty.*— By section 37 of the 10th G. 4, c. 56, Bonds and other securities and assurances, given to or on account of any Friendly society, and any instrument or document required, or authorised, to be given, or made, to or by any Friendly Society, are expressly exempted from any stamp duty whatever; and by the combined operation of this clause and the 4th section of the Building Societies Act, all mortgages made to the trustees of Benefit Building Societies are freed from stamp duty.

210.—*Income Tax.*—A society is liable to pay income-tax upon its profits, that is to say, on the *interest part* of the repayments of borrowing members, but not upon the other receipts, as they form the working capital of the association. It should be remembered, however, that if a society pay income-tax on such of its receipts as arise from interest, a corresponding deduction must be made, at the close of the society or a person's membership, from the amount of his share then due; the deduction affecting that portion of the full share which represents the accumulations from interest.

211.—*Minors.*—From the circumstance of the 32nd sec. of stat. 10 Geo. IV., cap. 56, authorizing minors to become members of friendly societies, infants may also become members of societies established under the Building Society Statute,

6 & 7 Wm. IV., cap. 32, and enjoy all the advantages derivable therefrom, as investors or depositors, but they cannot enter into obligations as borrowers or mortgagees, until they attain their majority. And "although an infant hath capacity to purchase, yet, at full age he may agree thereunto, and perfect it, or, without any cause to be alleged, waive or disagree with the purchase."

212.—Building societies may lend money for the purpose of redeeming existing mortgages, or to meet any other exigencies of a member, on the security of a house or property already in his possession. Such security would be within the 21st section of 10 Geo. IV., c. 56, and, therefore, vest in the trustees or treasurer for the time being, although the property was in his possession long before the date of his advance. (See cases of *Cutbill* v. *Kingdom*, 1 Exch. Rep. 494; 17 Law J. Rep. N.S. Exch. 177; and *Morrison* v. *Glover*, 19 Law J. Rep. N.S. Exch. 20, 21 Nov. 1849.)

213.—It is expedient that the Rules should provide that, on the death or removal of any Trustee, the resolution, appointing a new trustee should be duly enrolled with the Registrar. Unless this be done, it will be very difficult to prove to the satisfaction of a purchaser, in case of any future sale or raising of money by the member, that the persons who signed the receipt on the mortgage deed were the then trustees of the society.

214.—The Redemption and Foreclosure clauses should be framed with great care, so as to define the exact mode, in which the amount to be claimed of a borrower in redemption of his mortgage shall be calculated, and as to whether he is to participate in the profits of the society. Nine out of ten of the law suits of Building Societies have been in connection with disputes as to the amount to be charged on redemptions. The remarks on this subject of Vice-Chancellor Wood, in the case of *Fleming* v. *Self* (April, 1854), and those of the Lord Chancellor Cranworth, before whom the case afterwards

came (July, 1854), are full of instructive information. They confirm the views we have advanced in Art. 50, as to liability of borrowers to continue their subscriptions in a terminating society, until the investors' shares are realized.

215.—A Joint Stock Company cannot become a member of a Building Society (Dobinson *v.* Hawks, 16 Sim. 407, 20 Nov., 1848), where it was held that a number of persons forming a Joint Stock Brewery Company could not be members of a Building Society.

216.—*The course of proceeding necessary to be adopted* to obtain the *Enrolment* of the *Rules* of the intended Society, is as follows :—

Two copies of the rules, written (or printed) on paper or parchment, signed by three members and a clerk or secretary, must be sent (with the fee of one guinea) to the registrar of friendly societies in England, Scotland, or Ireland, as the case may be, for the purpose of ascertaining whether the rules are calculated to carry into effect the intention of the parties framing them, &c., and are in conformity to law, and the provision of the statutes in force relating to such societies ; and the registrar is to give a certificate on each of the said copies, that the same are in conformity to law, and to the provisions of the statutes in force relating to such societies, or point out in what part or parts the said rules are repugnant thereto. The registrar is to return one of the copies to the society, and keep the other, *and the rules may be legally acted upon from the time when the same are certified by the registrar.* (4 & 5 W. IV., c. 40, s. 4; and 9 & 10 Vict. c. 27, s. 12.)

If any alterations or amendments are at any time made in such rules, the same course must be pursued ; and an affidavit of the clerk or secretary, or one of the officers of the society, that the provisions of the Acts under which the rules have been enrolled have been complied with, must also be transmitted. The affidavit should be in the following form :—

I, ———, of ————. the clerk (or secretary, or one of the officers) of the ——— society, held at ——, in the county of ——, make oath

*and say. that in the making the alterations (or amendments) in the
rules of the said society, the provisions of the Act under which the
rules of the said society are enrolled have been duly complied with.*

Sworn this —— day of ———, 18—,
    before me

    A Justice of the Peace acting for ————

217.—The fee payable to the registrar for his certificate is one
guinea, but he is not entitled to a fee in respect of any alteration or
amendment of any rules upon which one fee has been already paid
within the period of three years, nor for any certificate to rules, &c.,
which are copies of any that have been certified by him, and duly
enrolled. (4 & 5 W. IV , c. 40, ss. 4, 5.)

218.—Besides being exempted from the operation of the Joint
Stock Companies Registration Act, a Benefit Building society, by
having its rules duly enrolled, derives many other benefits ; for—

1st.—The rules are binding, and may be legally enforced.—(10
Geo. IV, c 56, s. 8.)

2nd.—Protection is given to the members, &c., in enforcing
their just claims, and against any fraudulent dissolution of the
society. (s. 26.)

3rd.—The property of the society is declared to be vested in the
trustee or treasurer for the time being. (s. 21.)

4th.—The trustee or treasurer may, with respect to property of
society, sue and be sued in his own name. (ib.)

5th.—Fraud committed with respect to property is punishable
by justices. (s. 25.)

6th.—Disputes, in certain cases, are to be settled by reference
to justices, or arbitration, whose order, as awarded, is final.
(s. 27.)

7th.—Priority of payment of debts, in case an officer, &c., of
the society become bankrupt, insolvent, has an execution, &c.
against his property, or dies. (4 & 5 Wm. IV., c. 40, s. 12.)

8th.—In case of death of members, payment may be made of
sum not exceeding £20, without the expense &c., of obtaining
letters of administration. (10 Geo. IV., c. 56, s. 24.)

9th.—Members are allowed to be witnesses in all proceedings, criminal or civil, respecting property of the society. (4 & 5 Wm. IV., c. 40, s. 10.)

Lastly.—No re-conveyance of the mortgaged property is necessary on the termination of the society, or on repayment of the money advanced. (6 & 7 Wm. IV., c. 32, s. 5.) It is also exempt from the operation of the Joint Stock Companies Winding-up Act, 1848, the 11 & 12 Vic., c. 45, for, by the second section of that Act, it is enacted, " That all Benefit Building societies, other than such as are duly certified and enrolled under the statute in force respecting such societies, shall be liable to the operation of this Act.

219.—Respecting *Arbitration* see Art. 78.

220.—In addition to the power given to the members to alter, amend, annul, or repeal the rules, and make new rules, the 10 Geo. IV. c. 56, s. 9, enacts, " that no rule shall be altered, rescinded, or repealed, unless at a general meeting of the members, convened by public notice, signed by the secretary, or president, or other principal officer or clerk of such society, in pursuance of a requisition for that purpose, by seven or more of the members of such society ; the requisition and notice to be publicly read at the two usual meetings to be held next before such general meeting ; or unless a committee shall have been nominated for that purpose at a general meeting convened in manner aforesaid, in which case the committee may make such alterations or repeal ; and unless such alterations or repeal shall be made with the concurrence of three-fourths of the members present at the general meeting, or by three-fourths of the committee."

AS TO VOTING FOR MEMBERS.

221.—*As regards the qualification to Vote for Members of Parliament*, the 8 Hen. VI., c. 7, limited the right of voting for counties to persons possessing free land or tenement of the yearly value of 40s. It is doubtful whether

Voters for Counties.

before this statute the right extended to all freemen, or only to free-

Freeholders. holders. Dalton says, that " by the common law, all "*freemen* of England had a voice in the election of these " knights within the counties where they dwelt." And Prynne says, " every inhabitant and commoner in each county had "a voice in the election of knights, before 8 Hen. VI., whether he " was a freeholder or not." That statute ordains and establishes that knights of the shires, or Members of Parliament in England, shall be chosen by people, whereof every one of them *shall have free land or tenement to the value of forty shillings by the year at the least above all charges.*

This enactment is the foundation of the present law, as regards the right to vote by 40s. freeholders in counties.

222.—The words *free land* or *tenement*, mean an estate in lands or tenements of *freehold tenure*. It is something more than a *freehold*, which includes any estate of an uncertain determination, and may exist in lands subject to customary services, and therefore of a *base*, and not *freehold tenure*, although a freehold *interest*. It was not

Copyholders. until the passing of the Reform Act, 2 Wm. IV., c. 45, that copyholders and customary freeholders had the right to vote. By the 19th section of that Act, persons seized of land or tenements of copyhold, or any other tenure whatever, are entitled to vote ; but the estate must be of the clear yearly value of *ten pounds*.

Freeholders
for life. By the same Act, the right of freeholders to vote is continued, with the reservation, that if the claim is in respect of any freehold lands or tenements, whereof such person may be seized for his own life, or for the life of another, or for any lives whatsoever, he shall be in the *actual* and *bonâ fide* occupation of such lands or tenements, or the same shall have come to such person by marriage settlement, devise, or promotion to any benefice or office, or the same shall be of the clear yearly value of not less than *ten pounds* above all rents and charges.

223.—The 7 & 8 Wm. III., c 25, s. 7, enacts that no person

Trustees or
Mortgagees. shall be allowed to have any vote in elections, for or by reason of any trust estate, or mortgage, unless such trustee or mortgagee be in actual possession or receipt of the rents

and profits of the same estate ; but the mortgagor, or *cestuique trust*, in possession, shall vote for the same estate, notwithstanding such mortgage or trust ; and all conveyances of any messuages, lands, tenements, or hereditaments, in any county, city, borough,

Conveyances to multiply voices void.

town corporate, port, or place, *in order to multiply voices, or to split and divide the interest in any houses or lands among several persons, to enable them to vote at elections*, are declared to be void, and no more than one single voice shall be admitted for one and the same house or tenement.

224.—The 18 Geo. II. c. 18, s. 5, enacts, that no person shall vote in such election, without having a freehold estate in the county, of the clear yearly value of 40s. over and above all rents and charges, payable out of or in respect of the same ; or without having been in the actual possession, or in receipt of the rents and profits thereof, for his own use above twelve calendar months, unless the same came to him within that time by descent, marriage, marriage settlement, devise, or promotion to a benefice in a church, or by promotion to an office ; or in right of any freehold estate which was made or granted to him fraudulently on purpose to qualify him to give his vote ; or should vote more than once at the same election

Mortgagee.

under penalty of 40l. and costs of suit. The 6 Vic. c. 18, s. 74, enacts that no mortgagee of any lands or tenements shall have any vote in the election of a Member of Parliament, at which freeholders have the right to vote, for or by reason of any mortgage estate therein, unless he be in the

Mortgagor.

Trustee.

actual possession or receipt of the rents and profits thereof ; but that the mortgagor in actual possession or in receipt of the rents and profits thereof shall and may vote for the same, notwithstanding such mortgage ; and that no trustee of any lands or tenements shall in any case have a right to vote in any election for or by reason of any trust estate therein ; but that the *cestuique trust* in actual possession or in receipt of the rents and profits thereof, though he may receive the same through the hands of the trustee, shall and may vote for the same, notwithstanding such trust.

The 2 Wm. IV. c. 45, s. 20, provides that persons
Leaseholders. having a leasehold interest of the annual value of 10*l.*
for the term of *sixty years ;* or of the annual value of
50*l.* for the term of *twenty years,* are entitled to be registered as
voters.

225.—By the same section, it is enacted that every person who
shall occupy as tenant, any lands or tenements for
Occupiers. which he is *bonâ fide* liable to a yearly rent of not less
than 50*l.* shall be entitled to vote.

226.—The foregoing is a short summary of those qualifications to
vote for Members of Parliament for counties, which are likely to be
obtained through the instrumentality of Benefit Building, Freehold
Land, and other similar societies. As, however, qualifications to
vote for Members for cities and boroughs may be obtained through
the instrumentality of those societies, it will be as well to state the
nature of the qualification which can be so obtained.

The right to vote for cities and boroughs under the 2
Voters for Wm. IV. c. 45, is, by s. 27, given " to every person of
cities and " full age, and not subject to any legal incapacity, who
boroughs.
" shall occupy, either as owner or tenant, any house,
" warehouse, counting-house, shop, or other building, being either
" separately, or jointly with any land occupied therewith by him as
" owner, or occupied by him therewith as tenant, under the same
" landlord, of the clear yearly value of 10*l.*"

The elective franchise is possessed and obtained by other means,
which need not be described here, because these societies will not be
affected by those provisions.

227.—In conclusion, we may remark that, in the event of
a new Act for Benefit Building Societies being introduced
into Parliament, the following points are deserving of consi-
deration :—

1.—Power for Building Societies to amalgamate with
each other, or for one society to transfer its business to
another.

2.—Provision for the Registrar, or other suitable party
selected by the Society, to act as Receiver of the Re-

payments of the unexpired mortgages of any Society, which it is considered desirable should be dissolved.

3.—The restriction of £1 a month and £150 amount of shares to be rescinded.

Powers are also required :—

4.—To permit of a Society changing its seat of business from one county to another.

5.—To allow of advances being made on security, which consists collaterally, or in part, of personal sureties, or of Policies of Life or other Assurance.

6.—To permit of Land being bought in the gross by a Society, for division at *wholesale* prices among the members, —see remarks in Chapter II., Part 2, of this Division, on Freehold Land Societies. As such buying of Land is not contemplated by the Building Societies' Act, the Directors of Land Societies are obliged to incur the personal risk of purchasing themselves, and of trusting to subsequent allotments among the members ; thus opening the door to a strong temptation to the Directors to make a personal profit by adding a margin, before division, to the wholesale cost.

7.—To permit of Suburban Villages being erected on Land so purchased, for allotment among members desirous of purchasing Freehold Cottages ; and to permit of school-rooms, &c., being erected at a cost to be divided proportionately among such members.

The reader who is desirous of more detailed information on the Law of Benefit Building Societies, should consult the three admirable Legal Treatises by WILLIAM TIDD PRATT, *Esq., and* JOHN THOMPSON, *Esq., Barristers-at-Law, and* WILLIAM STONE, *Esq., Attorney-at-Law.*

PART II.

PART II.

On the general principles of Associations for Land Investment exemplified in the cases of FREEHOLD LAND SOCIETIES, BUILDING COMPANIES, *and* SUBURBAN VILLAGES, *&c., &c.; also on the application of* LIFE ASSURANCE *and the* TONTINE *principle to the purchase of* FREEHOLD *property at Home and in the Colonies; with suggestions for the establishment of* BENEFIT EMIGRATION SOCIETIES.

CHAPTER I.

FREEHOLD LAND SOCIETIES.

ART. 1.—The same principle of co-operation and mutual assistance, upon which we have shewn Benefit Building Societies to be based, may be applied, in various ways, to the formation of other institutions, tending to improve the condition of the industrious classes, or presenting profitable modes of investment both for the savings of persons of limited income, and for the capital of great money holders. In this and following Chapters it is not our intention to notice, categorically, the numerous schemes which have lately been formed, or are now in contemplation, upon this principle, nor to enter fully into their merits and defects; but, we hope that, by selecting from among them a few specimens, and by embodying, in the description of each, the general characteristics of the class to which it belongs, there will be sufficient to enable the reader to apply the reasoning adduced in Part 1, and to judge for himself of the merits of any new institution, the features of which are not exactly enumerated.

2.—In every Land Investment Society, there are usually the two classes, as in the Benefit Building Societies, who

have in view distinct objects, which, diversified perhaps in their smaller details, form the basis of each association.

Among the candidates for attention, stand first in importance, numerous associations, which have recently come into existence under the name of " Freehold Land Societies ;" at the same time that they tacitly subjoin the more modest appellation of Benefit Building Societies, and adopt similar Rules in their formation, for the purpose of being registered as participators in the privileges of the Act of Parliament relating to the latter institutions. Their chief object is acknowledged to be the extension of the elective franchise* within the present limits of the constitution. The purchase of property, until quite lately, being merely a secondary consideration, or rather a means to the attainment of the political end.

3.—These institutions have, therefore, as might be expected, received the support, and occupied the attention of some of the most active political economists of the present time. In consequence, however, of the difference between their mode of operation, and that of Benefit Building Societies, they can hardly be said to have any right to come within the provisions of the Act of Parliament by which the latter are regulated ; and, by several leading authorities, it is held that serious legal difficulties are still likely to arise in the completion of their political purpose. They are, nevertheless, daily becoming more and more important, and increasing in popularity.

4.—Their object is simple enough, and easily understood. Proceeding on the principle, that land, when sold in the gross, fetches a lower price, per acre, than when sold in small portions, particularly in the vicinity of large towns, these societies purchase, with money obtained from external sources, successively, considerable estates, and divide the same among the members in allotments sufficiently large to constitute 40s.

[* See Chapter 9, Part I, for details relating to the Law of Voting.]

freeholds. They undertake in this manner to enable persons with limited means to become county voters at a moderate expense. The estimate, upon which they proceed, is, that 40s. freeholds may thus be acquired at a price, which any skilled artizan in steady employment may accomplish in the course of 5 or 6 years (the time usually mentioned) by laying aside 1s. 6d. a week out of his wages for that purpose. It is obvious that, if this assumption be correct, (into which we will shortly examine,) a number of persons contributing to a joint stock fund would speedily raise sums large enough to purchase considerable estates; and the members might, from time to time, be put in possession of freeholds, on paying up the whole price, if they are able to do so out of their previous savings, or by giving a mortgage on the property, to be paid off by their periodical subscriptions as instalments. The scheme was first tried in Birmingham in a society formed by Mr. J. Taylor of that town. The workmen there had heard of the efforts of the Anti-Corn Law League to carry South Lancashire by registering as many of their members as could be persuaded to purchase 40s. freeholds. The average price of such freehold was separately £70; and it occurred to them, that, by combining the principles of accumulating a considerable fund through moderate weekly subscriptions, with that of buying land at a wholesale cost, and by dividing it in allotments to subscribers at the same price, 40s. freeholds might be brought within the reach of workmen, or at least of the sober and steady members of the skilled artizan class. Persuading others to join them, and securing the countenance and co-operation of several members of Parliament, the first Freehold Land Society was founded in the town of Birmingham in 1847.

5.—Its very first purchase has been referred to as an instance of the advantage of co-operation. The whole of an estate, for a portion of which, of sufficient size to be suitable for a single house, the owner declined to take less than 3s. 4d.

per yard, was actually bought for a sum, which enabled the society to convey it in lots to its members at 1*s.* 1*d.* per yard. These lots are said to have, thus, cost the new owners about £19 each; and many have erected dwelling houses upon them, while others are stated to have let theirs upon building leases, at a rent more than sufficient to give them the franchise. The rules of the society were certified on the 27th of December 1847, and at the end of the first year, its report announced, that the society had established six independent associations, *viz.*, in Dudley, Stourbridge, Coventry, Worcester, Wolverhampton, and Stafford, in which 2,108 members had subscribed for 2,837 shares; and that in Birmingham alone the subscriptions amounted to £500 per month. It was added that, the society had purchased an estate for £3,700, which had been allotted to 195 members; and " that the directors were proceeding to purchase others, which would give a preponderating influence in the elections of South Staffordshire and North Warwickshire."

6.—The impulse given by this remarkable success was so great, that, ere the termination of the second year, it was found advisable to hold a great conference at Birmingham, in order to organise a plan of general union and co-operation amongst the numerous associations which had sprung up. At this conference there were present numerous members of Parliament, and delegates from societies in London, Coventry, Wolverhampton, Leeds, Doncaster, Wrexham, Barnsley, Darlington, Halifax, Hertfordshire, Gloucester, Bradford, Stourbridge, and Derby, &c. It now appeared that in Birmingham alone £15,000 had been subscribed, and four estates purchased; £2,500 being taken up by 1,800 subscribers.

In Derby 1,000 shares were reported as subscribed for by 700 individuals, chiefly of the working classes; and £700 paid up. In Leicester, although the society was only three months old, there were 400 subscribers for as many shares.

A National Freehold Land Society was reported as established in London, having 750 members subscribing for 1,500 shares, with £1,900 already paid up. In Marylebone 830 shares had been subscribed for since July 1849. In Wolverhampton they had 750 members, and had purchased two estates at a cost of £10,780, by which, in their eagerness to join, the shares had gone up to £10 premium (with how little just cause the reader can easily imagine). In Stourbridge, with a population not exceeding 8,000, the society had already 250 members subscribing for 298 shares.

Such were the facts laid before the conference, testifying the extraordinary rapidity with which these societies were spreading; and up to the present time they manifest unabated increase.*

7.—The business discussed at the meetings of the conference was the construction of the rules of the associations; the formation of a central association of members and friends of the movement, irrespective of their societies; and the publication of a paper under the name of the " Freeholder," to be devoted expressly to the advocacy of the object in view, and to be a record of legal decisions affecting their interests, and of other details relating to its progress. Considerable discussion arose with respect to the formation of a central committee; it was at once evident, that no national machinery, by which the various local societies would be regulated and governed, would be possible even if desirable. The practical experience of one of their most able supporters, Mr. Cobden, M.P., suggested the formation of an executive committee with a paid secretary, to whom questions could be communicated

[* From the time of the first conference at the end of 1849, fifty new Freehold Land Societies were formed, in less than six months, in other leading towns. The total number of members, in all the associations, amounted to 14,281 subscribers, for 20,475 shares. A later return, to October 1850, states, that there were then eighty societies in operation, with numerous branches; and that the sum of £170,000 had been contributed upon 30,000 shares of the ultimate value of nearly one million of money.]

and information addressed ; and by whom meetings would be
organised, lecturers appointed, and the publication of the
paper superintended ; and, in fact, who would discharge all
duties analogous to those performed by the executive com-
mittee of the late League.

It was therefore decided, that a committee of the Bir-
mingham Society, with power to add to their number, should
form the central executive ; the functions of which should be
strictly confined to giving information and aid to local
societies, and to the promotion of the general progress of the
movement by the dispatch of skilled emissaries.

These interesting details are adduced as evidence of the
energy, with which these associations are being conducted ; and
the source, whence they are collected, is such, that there exists
no reason for doubting their accuracy.

8.—Apart from other considerations, if the basis of each
society were carefully constructed, the movement might be
productive of good ; and, if extensively taken up by the class of
small retail dealers, employés, and the superior class of work-
men, it will not only add to the county constituencies a large
number of independent voters, but it will bring within the
pale of the Constitution, and reconcile to it an important
class of the people. The principle of co-operation adopted
may transfer to the body of members the advantages, which
single proprietors have hitherto possessed, and may, thus,
enable the many to participate in benefits, which have been
hitherto enjoyed by the few. It will also occur to every
reflecting person that, whatever be the peculiar political tenets
of the individuals who thus obtain the right of voting, incal-
culable advantage cannot fail, by reaction, to accrue to the
country at large, from the vast increase, which will arise, in the
number of men, who will be personally interested in the
preservation of order and tranquillity in the land, in which
they will have acquired a pecuniary interest ; nor should the
moral influence be overlooked, which the movement is likely

to exert, in its tendency to create and foster systematic habits of sobriety and self-denial.

In the words of a distinguished writer in reference to another class of associations, it may be said, that there can be no doubt of the soundness of the policy, which would encourage every class to seek to obtain a share in the artificial system of property upon which this country depends. At present the property of a labouring man is all tangible, and immediately at hand. It would not be a great wonder, if he were found to have no clear opinion of the rights of a landlord, a fundholder, a mortgagee, or an annuitant. But, if he were himself in possession of any of those claims, which, by means of the Law, can be created, enforced, or transferred, in virtue of the possession of a bit of paper; still more, if the comfort of his old age were connected with the legal tenure of his past earnings, he would, then, be interested in the continuance of that system by the share of it which belonged to himself.

Other eminent men* have remarked to a similar effect, that the object of increasing the number of freeholders at a county election is not an object against law, or morality, or sound policy; on the contrary, that the increasing of the number of persons, who enjoy the elective franchise, has been held by many to be beneficial to the Constitution, and certainly appears to have been the essential object of the legislature in passing the late Act for Amending the Representation of the People. Also—

That a conveyance of land by a vendor to one or more vendees for a bonâ fide consideration is valid, although the avowed object of the vendor is to multiply, and that of the vendees to acquire, the right of voting.

Again, " When a working man has saved sufficient to buy a freehold, surely there is no person, who will not say, that

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* Lord Chief Justice Tindal, in judgment—*Court of Common Pleas, 29th January,* 1846.

he is glad to see him thus employing the fruits of his industry and frugality."*

9.—But, though the promoters may be sanguine as to the ultimate results of their scheme, on account of the present apparently flourishing position of many of the existing Freehold Land Societies, when measured alone by the great number of shares subscribed; yet care does not appear to be exercised, to prevent them from falling into the serious errors of reasoning and practice, that have, unfortunately, too often characterized the workings of their prototypes, the Benefit Building Societies. The mode of allotting the funds of the association differs, but little, from that of the latter institution, while the principle involved is not identical. There is one distinction: the Freehold Land Society is expressly formed to avail itself of wholesale prices in land; and yet, under the Building Society Act, it has no authority itself to purchase estates and divide them; and it is powerless, unless a loan can be procured from some external source in sufficient amount. Hitherto, the movement has been kept up by the liberality of political supporters, who provide the necessary funds in each case; and the rapidity of the extension of these associations proves how little importance is attached to the contingency, that, not only will the price of land, in all probability, rise by this increase in the number of purchasers, but, in many cases, freehold property will not be obtainable, at all, in such convenient situations and of such suitable magnitudes, as to meet the object desired.

10.—The Rules, which have come under our notice, contain no definite understanding, as to the adjustment of the duration of the payments of the members, and no real principle by which, whatever be the time of entry, the profits can be equitably divided among the shareholders, nor any sufficient provision, by which a member, who may wish to

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* Speech of Lord John Russell, 5th June, 1849.

withdraw, may be secured from the loss of his right to some benefit from the past success of the association ; although, in many of the societies, in addition to the weekly contributions of 1s. 6d., or thereabouts, by which the positive wholesale cost of the land is to be repaid, an extra payment by way of interest is now being required from the allottees, varying from $5\frac{1}{2}$ to $6\frac{1}{2}$ per cent. Yet the rules do not seem to guard against an inequality in the advantages that may be obtained by the members, according as they have their land allotted to them at once, or after several years, such as ten or twelve, from the period of commencing their subscriptions; and it is far from improbable, that the ultimate cost to each member of his little property will be widely different. This could only be obviated by the adoption of some more systematic and tabular scale of subscriptions than is at present in use, so as to regulate the duration and amount of the payments by a fixed standard of years and rate of interest, (as in chap. vii., part 1,) and by paying strict attention to the importance of making the association perfectly mutual, so that the profits on cheap wholesale purchases may go to the general fund, and not to benefit incidental members to the detriment of their successors. The main secret of the prosperity of institutions of this kind consists in the correct adjustment of the relative position of each member to the exclusion of every attempt at favouritism ; and this depends upon a clear understanding existing between the board of directors and the shareholders. We fear that it is too rashly stated, that a freehold qualification for a county can be obtained at the small and definite sum of £20. Such promises should rather be limited to a statement, that while the directors remain responsible managers, all the wholesale property, which is bought, shall be divided without reservation of profit to those persons who primarily advanced the money, and that the members of the association shall have its refusal at cost price. For whether the cost is to be £20, or to range up to £50, and

(a) even £60, is a matter of vital importance to the success of the principle. It has happened that at Birmingham several persons obtained sufficient land to give them a qualification for so little as £20, but that arose, in all probability, from accident, and should not be put forward, as it is constantly, as the standard of the price of future purchases.

11.—To the majority of members the pecuniary advantage will rank above the political privilege, and to them the most important question will be, what it will practically cost to

[*(a)* The following figures from Mᶜ Culloch's "British Empire" are applicable in reference to the expectations of these Societies. The average *price* of land is thirty years' purchase.

Rent per acre in 1842-3, as determined by the Assessments under the Property and Income Tax Acts :—

ENGLAND.

	£	s.	d.
Bedford	1	5	5
Berks	1	4	8½
Bucks	1	5	3½
Cambridge	1	8	2¾
Chester	1	8	7
Cornwall	0	18	2¼
Cumberland	0	12	4½
Derby	1	5	8¼
Devon	0	18	9¾
Dorset	0	19	0½
Durham	0	15	4
Essex	1	6	3¼
Gloucester	1	7	10
Hereford	1	2	9½
Hertford	1	1	8¾
Huntingdon	1	6	2½
Kent	1	6	7½
Lancaster	1	8	11½
Leicester	1	14	10¼
Lincoln	1	8	0
Middlesex	2	2	11
Monmouth	0	18	3½
Norfolk	1	5	4¾
Northampton	1	9	1
Northumberland	0	13	11½
Nottingham	1	6	5
Oxford	1	4	1¾
Rutland	1	7	5½
Salop	1	4	5

	£	s.	d.
Somerset	1	12	7
Southampton	0	14	11¼
Stafford	1	9	1⅓
Suffolk	1	3	8
Surrey	0	17	10
Sussex	0	18	2¾
Warwick	1	11	6½
Westmoreland	0	11	0½
Wilts	1	3	4¼
Worcester	1	10	11½
York	1	1	4½
Average	1	3	5½

WALES

	£	s.	d.
Anglesea	0	14	10¾
Brecon	0	5	9
Cardigan	0	7	4¾
Carmarthen	0	10	1½
Carnarvon	0	8	7¼
Denbigh	0	14	0½
Flint	1	4	9½
Glamorgan	0	10	2¼
Merioneth	0	5	1
Montgomery	0	9	7
Pembroke	0	11	1¼
Radnor	0	7	1¾
Average	0	9	11¾

buy such a quantity of land, as will produce, by being leased out or otherwise, an income of £2 a year, or, what will be the annual pecuniary profit arising from the purchase. They will calculate that, if even £30 be the average price of such an income, £100 would give 6l. 13s. 8d. a year. This alone, over and above the abstract result of a vote, would be so great an attraction, as an advantageous investment, that it would be by far the best the market would afford, more especially with such excellent security as that of land. In the extreme case, where the Birmingham Society bought land, wholesale, which only cost £20 for the £2 a year, the rate per cent. of annual

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IRELAND.—1846.

LEINSTER.

	£	s.	d.
Carlow	1	0	1½
Dublin	1	2	1
Kildare	0	18	7
Kilkenny	0	15	6
King's	0	14	5
Longford	0	15	8½
Louth	1	7	11
Meath	1	14	5
Queen's	0	11	11
Westmeath	0	18	0
Wexford	0	18	7
Wicklow	0	12	5
Average	0	17	6

Cultivated .... 4,092,701 acres.
Mountain and Bog   731,886   „

MUNSTER.

	£	s.	d.
Clare	0	9	3
Cork	0	13	1
Kerry	0	7	2¼
Limerick	1	3	5½
Tipperary	0	19	10¼
Waterford	0	15	2¼
Average	0	14	0

Cultivated .... 4,019,721 acres.
Mountain, &c. ... 1,893,477   „

ULSTER.

	£	s.	d.
Antrim	0	18	4½
Armagh	1	0	9½
Cavan	0	14	8¼
Donegal	0	5	1½
Down	0	19	11¼
Fermanagh	0	11	1½
Londonderry	0	11	6¾
Monaghan	0	17	3½
Tyrone	0	9	6½
Average	0	12	10

Cultivated .... 3,496,112 acres.
Mountain 1,764,370   „

CONNAUGHT.

	£	s.	d.
Galway	0	8	3¾
Leitrim	0	8	9
Mayo	0	6	1½
Roscommon	0	13	4
Sligo	0	11	4
Average	0	8	8¼

Cultivated .... 2,273,177 acres.
Mountain 1,906,002   „

TOTAL.

	Acres.		£	s.	d.
Cultivated	13,884,711	Average Rent	0	13	5¼
Uncultivated	6,295,735	Average of Cultivated	0	19	3

profit was a perpetual income of £10 a year. The improba-
bility of such good fortune recurring ought to be sufficient
to rouse the industrious classes into making further enquiry
into the practicability of these new candidates for popularity.
The more so, when the member is required to pay for
this enormous advantage by such easy instalments as 3s. or
4s. a fortnight for five or six years. If the principle be
good, when abstractedly considered, it is unnecessary and
unwise to expose it to suspicion.

12.—Again, when the land is purchased, it will be utterly
useless, in a pecuniary sense, to its owner, unless four or five
can join together to let their fractions of territory to one
tenant, or unless the purchaser contemplates building thereon
for his own purposes. A mechanic in a manufacturing town
cannot make any use himself of his land.* He is ignorant
of its management, and can only make a profit from his pur-
chase by letting it to others; and, even then, the expense of
employing an agent, with the uncertainty of collecting his
small rent regularly, would diminish the advantage of his
purchase.† Hence, it appears probable, that much discontent
will shortly arise among the poorer members of these societies,
who have entered under the impression, that, in addition to
the influence to be acquired by the possession of a county vote,
they would be making a highly lucrative profit from their

* [The remarks in chap. 3, of this part, will suggest to the reader how
serviceable Freehold Land Societies might be made in the establishment of
Suburban villages, and in the furtherance of what is now denominated
"Home Colonization," or the reclaiming of the extensive uncultivated, but
excellent, waste lands in the United Kingdom]

† [With the existing law there is much uncertainty always attending the
investigation of titles and conveyance of landed property, and considerable
expense, which does not decrease in proportion to the diminution in the value
of the allotment. The uncertainty, on the one hand, might, perhaps, be
removed by a system of *Title Guarantee Assurance*, which, if adopted by
the societies collectively, could be effected at a moderate premium ; and, on
the other, the expenses should, like the profits, come from the general fund
of each association, in such a manner, however, that the allottees should pay
the greater part thereof.]

savings. The comparatively rich member, who can take up six or seven shares or more, will reap benefit not only from the greater certainty of being able to turn his land to account, but, also, from the increase in the general profits of the association, that must accrue through the forfeited shares of those members, whose means of existence are too precarious to enable them to be regular in their payments.

13.—In the establishment of Freehold Land Societies their political object has been considered essentially before the question of their capabilities as an advantageous investment for money to the industrious classes; hence, it may fairly be expected that, as soon as the political excitement, by which they are now supported, has subsided, the directors and others will cease to be so ready to incur the risk of themselves purchasing wholesale tracts of land, for a re-sale of which, to the members, by the strict letter of the Benefit Building Society's Act, they can have no security whatever; and any attempt to mix up the pecuniary operations of the society, with their own voluntary engagements, will not fail to expose the association to litigation, expenses, and loss.

14.—To provide against these difficulties, as far as may be practicable, the operations of a freehold land society should be made more analogous to those of the permanent benefit building society, for which chap. vii., part i, contains a draft set of rules; so that the monetary payments, or contributions, may be for fixed periods independent of the duration of the institution, and its scope may be extended by rendering it, as the point of greatest importance, safe and attractive to pure *Investers*, or members who may not care for allotments, and also to others, who may, perhaps, by a change of mind, contemplate buying a *house* for their occupancy, from which a vote, though not for the county, would be afforded. The subscriptions would, thus, increase so rapidly as to render the purchase of wholesale land feasible even out of the funds of the association; and the legal objection to an aggregate purchase,

on behalf of the society, would disappear on the requisite number of members declaring themselves candidates for an advance of money on security of an allotment of the land to be purchased. To this might be adapted still greater extension by the establishment of Endowment Funds for young people, for which rates of weekly or monthly subscriptions might be so graduated, according to age at entry, independent of any law of mortality, that, on attaining the age of twenty-one they should come into a freehold qualification. The money could be received, by a similar machinery to that of the Savings' Banks, in small sums from pennies upwards, according to the means of the parents, or, even of the children or youths themselves contributing.

15.—In other words, Freehold Land Societies must be modified, so as to give to them more of the character of *Investment* Associations for non-borrowers, and the advances of money should not be limited to the procuring of the mere land, but might be extended with advantage to affording to the new proprietor the means of stocking and improving his freehold, so as to render it reproductive and fit for occupation. Were such a modification introduced, and some satisfactory and equitable principle adopted in the distribution of profits among the members, which, to judge by their recent discussions, is not the case, then a Freehold *Land* and *Investment* Society would constitute one of the best mediums for industrial savings that this country could present ; and they would flourish, long after their fictitious popularity, as political instruments, had ceased. The draft rules in part 1 would be perfectly suitable to a freehold land society, if the investing shares were made £25, the payments weekly or fortnightly, and the repayments upon advances calculated at about 5 per cent. interest.

16.—Respecting the increase in the suffrage, we may remark, that the creation of county votes by the purchase of 40s. freeholds, is applicable to England and Wales alone ;

though the principle of co-operation employed might be easily adapted to Scotland or Ireland.

The following is an analysis, according to their various classes, of the County qualification, extracted from the Parliamentary Return, 23rd July, 1847 :—

	Freehold, including freeholders of inheritance, freeholders for life or lives, pew-renters, rent-chargers, rectorial and vicarial tithes, or other freehold qualification.	Copyhold & Customary, including copy of court roll, tenants by custom of the manor, tenants in ancient demesne.	Leasehold, for period of years or for lives.	Occupying tenants, at a rent of £50 per annum.	Trustees and Mortgagees in actual receipts of the rents and profits.	Offices, including all ecclesiastical or parochial appointments, as holders of benefices, &c organists, parish clerks, sextons, &c.	Joint qualifications, including all who are registered for more than one qualification.	Other qualifications not included in the foregoing.	TOTAL.
ENGLAND...	316,908	25,706	21,517	100,008	774	2,276	8,604	439	475,036
WALES......	20,362	173	7,450	8,787	99	108	766	48	37,340
									512,376

* Of these 512,376 electors, many were inhabitants of large towns, and imbued with various shades of popular opinion, and many in the agricultural districts independent of the influence of landlords.   Against this must be placed upwards of 108,795 tenants-at-will, who, in consequence, as a class, have no choice in the expression of a political opinion. The desire of the promoters of the new movement is, of course, to counterbalance this large influence by the creation of a number of small freehold voters equal to that of the tenant voters, especially by exertions in those localities where the numbers are not so disproportionate but that the balance may be turned.

17.—The fact should, nevertheless, not be overlooked, that although the mere purchase of such freehold property on moderate terms may be feasible, yet that the qualification for the franchise obtained is, in reality, for several years, fictitious, inasmuch as, until the cessation of his payments, the member of the Freehold Land Society has not a bonâ fide interest to the extent of 40s. in the land, and is not, in law, entitled to vote.   And the mere circumstance of his seeking to become the proprietor of a *perpetual* income of 40s. from the land, which he is purchasing, is evidence that the annual payments during the term of his membership must far exceed that sum.

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* [A more recent return is published, entitled " An Abstract of the Numbers of Parliamentary Electors in Great Britain and *Ireland,* according to the Registrations of 1848-9 and 1849-50." We learn from it that the total number of electors on the register for 1849-50 is 1,050,187.   For the cities and boroughs, 471,502.   For the counties, 578,685.   The numbers last year were 1,041,203.   For the cities and boroughs, 451,534.   For the counties, 589,669.   This shows a gain in the cities and boroughs of 19,968 and a loss in the counties of 10,984; making the increase in the whole constituency, 8,187.   The *County* constituency in England in 1848-9 was less than in 1847, and numbered 466,060 votes.   This year the number is only 461,413, or 4,060 votes less than last year; so that nearly one-half of the total loss in the counties is in England where the system of Forty-shilling Freeholds prevails. The Forty-shilling Franchise does not apply to Ireland or Scotland.]

CHAPTER II.

DESCRIPTION OF THE TONTINE PRINCIPLE
AND ITS
APPLICATION TO ASSOCIATIONS FOR LAND INVESTMENT.

ART. 18.— We will now proceed to describe, briefly, the mode of speculation commonly called the Tontine, and to examine both its present application and its further extension to the purchase of property. The constitution of a Tontine Company differs from the plans considered in preceding chapters, as, instead of each and every member reaping an equal benefit from the association, the ultimate main advantages of a Tontine, whether in the acquirement of a large capital or other property, are obtainable only by one member, or by that limited number of individuals, out of a large body, who may prove to be endowed with extreme longevity.

19.—A few words respecting the origin of the principle, and the tone of the public mind at that time, may not be uninteresting.

In the year 1644, a Neapolitan, named Lorenzo Tonti, came to Paris, and, during a scarcity of money which then prevailed, proposed the formation of a kind of Life Rents or Annuities, which subsequently were designated, after him, Tontines, although the principle itself was in operation in Italy before his time. The Tontines, so proposed, differed from the afterwards ordinary popular lotteries in the contingency of the increasing, and maximum, advantage being deferred for many years, with the assurance only of a moderate profit beforehand, beginning at a definite rate. After tedious disputes in regard to his original proposal, which was at length rejected for a time, he substituted, in its

stead, a new plan for a large Blanque or Lottery, which, in
1656, obtained the royal approbation.* It was to consist of
50,000 tickets, each at two Louis d'Ors, so that the whole
receipts would amount to 1,100,000 Livres (the Louis d'Or
at that time being only eleven Livres); from this sum 540,000
Livres were to be deducted for building a stone bridge and
an aqueduct. The expenses of the Blanque were estimated at
60,000 Livres, and the remaining 500,000 Livres were to be
divided into prizes, the highest of which was 30,000 Livres.
This lottery was never carried out. After some delays, by
which the matter was retarded until after the peace in 1660,
a Lottery was finally opened, and the tickets, at a cost of one
louis d'or, were drawn publicly under the inspection of the
police. The highest prize was 100,000 Livres, and was won
by King Louis XIV. himself, who objected to receive it, and
left it to the next Lottery, in which he had no ticket. Several
other lotteries followed to such an extent, that, in the year
1661, it was ordered that all private lotteries should be for-
bidden under severe penalties, and this prohibition was re-
peated in 1670, 1681, 1687, and 1700. Since that time no
other pure money lotteries have been allowed, but the
" Loteries Royales," the profits of which were, in general,
nominally, applied to public buildings, as was the case in
regard to the magnificent Church of St. Sulpice in Paris.

20.—The first actual Tontine upon Lives was created in
the month of December, 1689, and was practically an
Annuity association. It was divided into 14 classes of an
annual revenue, in all, of 1,400,000 Livres. The Shares
were 300 livres a-piece, and the proprietors, without regard
to sex, were to receive a yearly dividend, commencing at 10
per cent., with benefit of survivorship by way of increased
income in each class. The first class contained children under
5 years of age; the second was composed of others between

* [See an interesting account of Lotteries and Tontines in the History of
Inventions by Professor Beckmann of Gottingen]

5 and 10; the third from 10 to 15; and so on for the other classes.

This Tontine was very imperfectly filled up; for, into the first class, there entered only 202 members, and equally few persons into the others; yet many other French Tontines were formed, subsequently, in 1696, 1709, 1733, 1744.

In the year 1726, the French King united the 13th class of the first Tontine, with the 14th of the second, all the shares of which were possessed by one person, Charlotte Bonnemay, the widow of Louis Barbier, a Surgeon of Paris, who died at the age of 96: this lady had ventured a stake of 300 Livres in each Tontine, and, in the last year of her life, she had for her annuity 73,500 livres, or nearly £3,600 a year for about £30.

21.—The last State Tontine in France was in 1759; after which an impression arose, very justly, that, as the lives did not die off so speedily as was expected, the rate of annuity allowed, in redemption of the capital subscribed, with interest thereon, was very onerous; hence, in 1763, the Council of State decided, that this sort of financial resource for the creation of capital for governmental purposes should not again be resorted to.

22.—In England and Ireland, as well as in France, various Tontines were established in the last and present century, some of which are still in existence. The object, originally, in France, was (as we have seen) to raise large sums of money, as a species of loan, to be repaid, principal and interest, by periodic dividends, which were to continue until the death of all the lives, the whole existence of which represented the duration of the loan. Such was the case where Tontines were created for the benefit of the state, when they were divided into classes, according to the respective ages of the members. The whole periodic income of each class was divided among the survivors of that class, until, at last, it fell to one, and, upon the extinction of that life, reverted to the

power by which the *Redemption* Tontine was created, and for
which it became security for the due payment of the annuities.
In this kingdom, however, the system has rarely been adopted
as a measure of finance, and the speculation has generally been
of a private character, to effect some commercial enterprise;
in which latter case the whole capital invested, or the result
thereof, whether property purchased or otherwise, fell to the
lot of the last survivor. The lives, previously existing, having
participated in the increasing dividends of the company.

23.—Of the State Tontines in England and elsewhere we
have authentic records and *statistical details, deduced to a
comparatively modern date. The last was opened in 1789,
which was to consist of about 10,000 shares of £100 each,
and the benefit of survivorship on which shares was pro-
mised to the subscribers.   But only 3,518 lives were put
in by that body, the other contributors having soon afterwards
preferred a long annuity to the tontine. To keep faith with
those who held to the original contract, the Treasury was
obliged to take the remaining shares, and to appoint a nominee
for each, who were thence called "*Government nominees.*"
They were chosen as follows :—the class under twenty con-
sisted of the children of the nobility and gentry whose names,
age, parents, and residence were returned by the clergy of
the several parishes; the other elder classes consisted of
well known freeholders of property, persons assured in the
Amicable Life Office, and so on.

Among the 22,352 nominees altogether registered by Mr.
Finlaison, there was only one instance of a person passing the
age of 98; an old lady at Wimbledon, who lived to be 100 years
old, and who, as it chanced, was in the first Tontine of 1693.
On this point, he remarks, that when, in statistical statements,
many instances are set down of old people passing their 100th

* 1. Report to the Lords Commissioners of H. M. Treasury, by John Fin-
laison, Esq., of the National Debt Office.   31 March, 1829.

   2. W. Kersseboom on the Life Annuitants in Holland.   1748.

year, and some dying at much more advanced periods, there is reason to suspect very great error, from the well known propensity of octogenarians, and the impatience of their relatives, to exaggerate their age, and to persist in the same story, until, by the decay of their faculties, they believe it themselves.

The *following facts are interesting :—

1. Of the 1002 nominees in the English Tontines of 1693, the last died in 1789.

2. Of the 2552 lives in the Exchequer annuities granted 1745, 1746, 1757, and a few in 1766, 1778, and 1779, 156 still survived at January 1826.

3. Of the 3557 nominees in the 3 Irish Tontines begun in 1773, 1775, and 1778, respectively, 1564 survived January 1826.

4. Of the 3518 nominees of contributors in the Great English Tontine in 1789, 2203 survived January 1826.

5. Of the 4831 nominated (by lot) by Government in the Tontine of 1789, 3008 survived the same date, 1826.

24.—Tontines are separated into simple and compound : the Simple are those in which the dividends of the shareholders, who have died before a period of participation, are distributed among the surviving members of their class; Compound Tontines are those, where a portion, only, of the dividends belonging to the lapsed shares is carried to the survivors ; the remainder ceasing with the death. An example of this is afforded by the french Tontine of 1734, in which one-fourth of the periodic dividend on each share ceased with the death of its possessor. In subsequent Tontines, other varieties existed, where even half, and more, of the dividend lapsed with the life, a portion of that, which had accrued before a death, being presented to the families of the deceased as a slight alleviation of their pecuniary loss. In the

* [In each case the lives selected were principally children, and more especially girls, although some few contributors nominated lives even of advanced age, up to 50 and 60.]

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celebrated tables of *Deparcieux, calculations have been
given of the duration of life among the Tontine members of
his time.   They tend to show how little the desire to nomi-
nate select lives availed the speculators of that period.

25.—Since that epoch, France has become noted for the
extraordinary popularity of the *Temporary Tontines* usually
denominated " Banques de Prévoyance," which have been
established in Paris and the leading provincial towns ; the
term of the Tontine being short, and divided generally into
cycles of 5, 10, 15, and 20 years.   The members, on entry,
pay for each share or policy a sum down, varying with their
age, to be invested in public or real securities ; and they
speculate upon the chance of their receiving as one of the
survivors, at the close of the cycle into which they have
entered, a large return for the money subscribed, consisting
not only of the accumulations from interest upon their own
shares, but of a portion arising from the death of less fortu-
nate members.   Many men, especially of the military pro-
fession, who had, perhaps, no relations to whom they were
particularly attached, on receiving prize money for their
services, placed it in a temporary Tontine.   They felt in-
different to the chance of loss, should they die before the end
of its term, by the fortune of war, or by the ordinary law of
mortality, and were willing to stake that risk against the more
agreeable prospect of reaping a magnificent profit from the
popular speculation.   †From the returns of 18 of the leading
societies we find that, even at the present time, they are con-
sidered so attractive, that, at the close of the year 1849
395,446 Policies were in force, involving shares subscribed to
the enormous extent of £15,957,444 12s. (or 398,936,114
francs) which had been purchased at a cost, proportioned to
the age, of £4,988,252 5s. 6d. (or 124,706,307 francs),
each share or policy entitling the possessor, if he survive his

* Essai sur les Probabilités de la dureé de la vie humaine, 1746.
† Revue des Assurances.   J. Dubroca, 1850.

particular cycle, not only to receive its amount, but also to participate in a proportionate part of the other accumulations arising from death. The aggregate capital is stated to produce, annually, an average income of £230,591 4s. 10d. (or 5,764,781 francs), merely from being invested.

Of these 'Associations Tontiniéres,' one of the most flourishing appears to be " La Caisse Paternelle," which numbers 57,276 Policies or shares in existence, to the extent of £3,107,792 8s. (or 77,694.810 francs).

Another, ' La Prévoyance, créé par ordonnance royale du 28 Avril, 1820,' in its printed returns of 1848, stated that shares amounting to 70 millions of francs were subscribed for, at a cost of 31 millions of francs paid in. A cycle having been recently completed, M. Dubroca gives the amount of its engagements, on the 31st December, 1849, at 58 millions of francs, nearly.

The following are illustrations of the profit lately divided (ages not given) by " La Prévoyance":—

					Francs.						Francs.
A.B.	A	Governess	1831	paid in...	200	for...	5	yrs., & then received.			1448
C.D.	„	Brewer	1828	„ ...	100	„ ...	10	„	„	...	590
E.F.	„	Priest	1837	„ ...	6000	„ ...	5	„	„	...	9064
G.H.	„	Councillor of State.	1824	„ ...	10000	„ ...	20	„	„	...	39213
I J.	„	Captain of Artillery.	1831	„ ...	500	„ ...	15	„	„	...	2071

The professions suggest the probable ages of the parties, and shew that the investment has been highly lucrative, more especially if we remember (Art. 32., Part 1.) the time it usually takes for money even to double itself. Many causes have tended, in France, to make the result of their Temporary Tontines very profitable to the survivors; the principal were, undoubtedly, the increased rate of mortality in that country for 30, out of the last 60, years, through revolutions, war, and other contingencies, and the high rate of interest which, during that time, could be obtained for money.

26.—The older form of Tontines has lately been revived in

England with various modifications. New societies have
sprung up, stimulated by the very great profits that have
been reaped by surviving members of old associations, and
principally designed by their promoters for the disposal of
freehold or long leasehold property, for which a *single* pur-
chaser, of sufficient means, could not be found. The object
is, consequently, to procure the necessary capital for the
purchase of the estate, by creating a large number of Shares,
of small amount, among which the net rental may be peri-
odically divided. The duration of each proprietor's interest
in his share, or shares, is thus made to depend upon the
existence of some life, nominated by himself, of an age to be
selected within given limits.

27.—In some Tontines, the minimum age is 10 or 15; in
others it ranges up to 50 or 60, and even 80 ; sometimes the
mention of any limit is omitted, in which case discretion is
left to the shareholders to nominate young lives, at such ages
as appear to them, or which experience has shewn, to give
the longest expectation of life. With the falling of the life
of the nominee, the share becomes cancelled in the ordinary
way, and the income of the Tontine is divided among the
survivors ; year by year the number becomes smaller, and the
dividends greater ; *until the last life, unless it has been other-
wise provided, comes into the whole of the property. The
application of the Perpetuity Tontine system to land, or, rather,
of Land investments to Tontines, obviously requires great
caution. A piece of land is bought at a cost absorbing the greater
part of the fund, which is formed by the subscriptions of the
members ; and, if necessary, according as the situation is
urban or rural, it is built over with houses, or converted into
farms, and let upon lease ; the rents received forming the
income of the society. The chief point, therefore, in this,
as in all land investments, is, whether the estate proposed

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* [That constitutes the difference between a State, or Redemption, and a
Private Tontine.]

is capable, from its situation or its nature, of being let at the
required rent; as it occasionally has happened, that societies
of this kind have been " got up" by the owners of land, for
the express purpose of ridding themselves of unproductive
property.

28.—The principle of a Tontine is, in its essence, a de-
cided speculation, but of a kind that may be made most
beneficial.   There exists no moral objection to the union of
individuals, who are willing to risk small sums in the hope of
augmenting their fortunes, without the customary efforts of
labour, intelligence, or skill, but by the lucky selection of
healthy and lasting lives.   In one case only, can such an
association be open to censure, as involving a species of danger-
ous gambling, viz :—where the shareholders nominate other
lives than their own.   *When, however, they speculate wholly
for the benefit of the life nominated, the application of the
principle is excellent.   It becomes, in reality, a game, in
which the stakes are laid, as to which of the players is likely
to live the longest.   The person, who collects the money and
undertakes to pay the dividends, being regarded in the light
of the banker to the game, and as one who is the responsible
agent for investing the funds confided to him.   So that,
while reaping a per centage for himself, he holds an account
with the players, as to the profits of the speculation, and
hands over to them, at the end of each year, or other fixed
period, the proceeds of their capital, which may be considered
as interest realized since the last day of settling.   In the
majority of games of chance, the main advantage is to the
banker, the loss to the players, who, in the excitement of
gambling, are exposed to lose, even, the very means of their
existence.   In a Tontine, where the shareholders nominate
their own lives, or the nominees are the parties pecuniarily

* Hamilton, in his History of the Public Revenue, remarks that Tontines
seem adapted to the passions of human nature, from the hope every man
entertains of longevity, and the desire of ease and affluence in old age.

interested, the speculation affords to them an increasing income, and the money involved is continuously reproductive.

29.—The existing Tontine Companies present little variety in their object. We have said that they are mainly designed to purchase large freehold estates, which are considered peculiarly suited, by nature and position, for some important commercial enterprise; leasehold tenures being usually rejected, from their limited character. When a particular estate has been selected by the promoters, in the conviction that, by improvement thereon, it can be made productive of considerable profit, they proceed to form a Joint Stock Company, under the provisions of the Acts of Parliament relating to such associations (7 and 8 Vic. c. 110 and 111; 8 and 9 Vic. c. 116; 10 and 11 Vic. c. 107.), with a license to purchase or hold land, which is to be obtained from the Privy Council for Trade. The capital of the Company, for example, say £100,000, is divided into 1000 shares of £100 each, to be held upon lives, of ages within selected limits. The Shareholders may nominate different lives for each share, or exercise their own discretion in concentrating their stakes upon a single life. At the end of 3 or 5 years, and at fixed intervals afterwards (the Company being in full operation), the rents from the houses upon the estate, or the profits from the commercial enterprise, whatever it be, after payment of expenses, are divided.

30.—To persons who are desirous of speculating, with, perhaps, less apparent pecuniary advantage, though, in the *long run*, greater security, the best Tontines are those in which the capital is invested in the purchase of well-situated Agricultural Freeholds, or in Government Stock and other public securities, and not in associations created for effecting building operations, which are conceived under the idea of the growing importance of the locality contemplated for investment. To those, however, who prefer the greater attraction of larger annual returns, such as are offered by the latter speculation, we would recommend the introduction

into the Deed of Settlement of their company of a special
clause to secure compensation to the holders of those shares,
the life nominees of which may die about the time that the
company has experienced a loss, through the falling off of its
rents, or other source of income, which, in investments on
such security, must, from time to time, be expected. The
object of the clause would be to guarantee to the proprietor
of a share, that has lapsed by death at such a period, a pro-
portionate part of the profits that may subsequently be
obtained through a prosperous reaction in the company.
For example :— suppose that in a Tontine, of which the rent
income is about £5000 a year, and the periods of division
are quinquennial, there occur, for two or three years, a
failure in its receipts, so that, instead of there being a sum of
£25,000 upwards to divide among the survivors at the next
division, there be only £10,000 or £15,000. Then, if the
original intention were to confine the speculation to the
chance of survivorship, and not to affect it by any fluctuation
in the proceeds of the property, it is clear that the share-
holders, whose life-nominees die anterior to a revival of pro-
perty at a subsequent division, should receive some com-
pensation for their loss. The mathematical principle of such
a clause is interesting, and should be taken as the basis
thereof.

31.—In most of the cases of the present application of the
Tontine system in this country, it is customary to select a
limit of minimum age for nominees, and then leave it to the
option of the shareholder to nominate a life of equal or
higher age, as he may think fit, when the limiting age is
young. The establishment of any Tontine would be facili-
tated if a reduction in the cost of each share were made, in
case of a life, several years older, being nominated ; since it
must be extremely difficult, in an extensive Tontine, for the
members to find a sufficient number of select lives of the
lowest specified age ; and each would be unwilling to risk his

chance upon the expected longevity of an older life. A diminution might safely be permitted, in the sum paid for the purchase of a share, provided it be proportionate to the diminished expectation of life of the nominee, and calculated by a sound table of mortality, with a margin in favour of the general fund. The said share, nevertheless, to convey to the purchaser a right to equal privileges with any other share.

32.—The speculation becomes much more interesting when the periods of the divisions of profits are at wide intervals; the effect of mortality at the end of periods of 5 or 10 years becomes sensible, and the accumulated income to be divided increases the attraction of the investment.

Referring to the *table at the end of this work, we find that, supposing the age at entry to be 15, the lives to consist of 1000 males, and the periods of division of profits to be quinquennial, the survivors of each period receive a rapid increase in their income. Suppose, as in a preceding example, that the shares be £100, and the annual returns of profit arising from the £100,000 invested be £5000, which, re-invested during the quinquennial period, would, at 5 per cent., produce £27,628, there would remain, after setting aside, say, £2,628 for expenses, &c., £25,000 to be divided. Then, if deaths occur in a ratio such as that of the mortality table referred to, there would be, to partake of it, at the end of 5 years, or at age 20, 963 members; or the dividend would be

£25 18s. 10d., nearly.

At the end of 10 yrs., or at age 25   ,,   924 members
Dividend ....£27 0s. 10d., nearly.
  ,,   35 ,,   ,, age 50   ,,   676   ,,
Dividend ....£36 19s 6d., nearly.
  ,,   45 ,,   ,, age 60   ,,   544   ,,
Dividend ....£46 0s. 0d. nearly.
  ,,   55 ,,   ,, age 70   ,,   342   ,,
Dividend ....£73 2s. 0d. nearly.

* English Life Table, 5th Report of the Registrar General.

And so on, up to age 90, when the number, still existing, would be about 14 or 15, and the dividend per share £1756 16s. 3d., or about $17\frac{1}{2}$ times the original sum paid. At 95 there would be, probably, but 2 alive to partake of the £25,000 dividend, and a few months longer would transfer the £100,000, or the property which represents it, to the last survivor, for his heirs for ever. (See also Section 4, Appendix).

33.—Moreover, when the intervals are distant, the application of Life Assurance may serve to protect the parties interested in those lives, that fail in the intervals between two successive divisions, from losing, altogether, their expected share of the profits. That is to say, it may, after a few years, suit their views to diminish the excitement of the speculation, by taking out a temporary policy on the life of the nominee, on the same principle which is so generally adopted by policy holders in the Equitable Life Office, who, at each approaching recurrence of the periods of the decennial divisions of profit in that society, effect temporary assurances on the lives involved, in order to guard, by a trifling outlay, against the total loss of the large Bonus which is usually declared. This expense, however, would, probably, not be entered into, until the Tontine had been some time in existence, and unless the lives selected had been originally young. We have met with recent prospectuses of Tontines on Building property, where it is proposed to arrange with a Life Office, that, out of the income of the company, from the very beginning (after a dividend at 5 per cent. has been set aside for the shareholders), premiums should be paid for assuring the return, on the death of each nominee, of the original sum itself, invested in the purchase of the share. This undertaking, if actually carried out, must, in effect, withdraw from surviving members the great profits, which are expected as likely to accrue from deaths. A simple calculation, founded on the tables of any Life Office, would shew that such a system of assurance would, as might naturally be anticipated, reduce the Tontine

(the very essence of which is, that it is a speculation on the longevity of lives), to a mere investment association, in which the capital of each member is only to be engaged to produce a moderate rate of interest, as long as he, or his nominee, is alive.   Life Assurance can be properly and advantageously adopted, when the Tontine has been a long time in operation, and the nominee has survived several years of the company's existence, or when the rate of profits upon each share has become so large as to make it worth a member's while to sacrifice a small portion to assure against the chance of total loss by death.*   Such an assurance should, nevertheless, be left optional to the party concerned, and not be made a feature of attraction, put forth by the company itself.

34.—One of our motives for thus entering upon the question of Tontines, is to suggest, to the consideration of our readers, the excellent application that may be made of the principle to the furtherance of Home Colonization and Systematic Emigration, by creating a capital, of which free use can be made without its being exposed to be withdrawn, or to be required for very many years; and we shall return to the subject in the 5th Chapter of this part of the Treatise.

* [It has been suggested, that a plan of increasing Policies of Assurance, or of returning a larger proportion of the cost of each share, might form part of the features of a Tontine company; the increase being regulated by the number of periods of division that the deceased nominee has survived. This, to our mind, would neutralize the benefits of a Tontine, both for the reason adduced in Art. 30, and from the possibility of fluctuations in the epochs of mortality of the nominees.   The following remarks of Mr. Finlaison are judicious, and bear upon such application of Life Assurance: —"When the number of lives in a society, tontine or community, are not very considerable, aberrations will happen.   From a series of sickly seasons, with, it may be, a prevailing malady affecting more severely some particular stage of existence than some other, the deaths may occasionally be in clusters, all signs of which would have disappeared or become submerged in an observation on greater numbers and over a greater length of time; *vice versâ*, it may chance that for some years, in early life more especially, during a course of healthy seasons the mortality runs so low as to be quite incredible, as a measure of the rate happening to larger masses through a greater variety of years."]

CHAPTER III.

Section I.

ART. 35.—At the commencement of Benefit Building or
Freehold Land Societies, such as we have described in pre-
ceding chapters, a notable difficulty has been found to exist,
in the absence of sufficient capital, through the slow and
gradual mode by which the funds are collected, and of proper
legal authority, whereby the erection or purchase of houses and
land may be effected, upon a wholesale principle, and a profit
may at once be secured to individuals in their part of the
same. The advantages of aggregate purchases, or of building
operations upon a large scale, are, however, so important, that
the promoters of many institutions, with such an object, have
found it desirable to forego the privileges of the Act of Par-
liament relating to the Benefit Building Societies, and have
sought a legal constitution under the provisions of the Acts
for Joint Stock Companies, referred to in a preceding page.
In the place, therefore, of the Investers' subscriptions of a
provident association, they have adopted the plan of the
Capital-Stock of a company, and have combined therewith,
in respect to the reproductive use of the money, the facilities
of Advance-repayments afforded by Building Societies.

36.—Building Companies and Suburban Village Associations have thus been formed with a capital, that serves to purchase land wholesale, and to erect a large number of buildings upon it, which, when finished, are transferred to purchasing-tenants, under security of a mortgage, for a specified term of years; the payments of the tenants, during that time, being monthly or quarterly, and calculated so as both to afford a liberal rate of interest on the capital invested, and to purchase the house from the company. Referring to the set of Rules given in Part 1, for the purpose of illustrating our meaning, instead of the plan adopted in clause 108, page 96, the proprietary capital is fixed at a nominal sum, from £100,000 to £250,000, divided into shares of £5 or £10 each, to be paid up in 2 or 3 instalments, within a short time; upon these shares, periodical dividends are declared at 4 or 5 per cent., or at such other rate as may be realized out of the profits upon the advance-repayments, which are received from the purchasers of the houses built by the company, and are calculated in the same way as Table 2, Art. 110, in the Rules above referred to; with this difference, that, instead of the money being advanced in cash to the tenant to enable him to erect or purchase for himself, the whole transaction is conducted under the superintendence of the Directors of the company; and the purchase-repayments are regulated by a table according to the wholesale cost, which is generally so moderate as to allow of a fair margin of profit in favour of the Stockholders, whose capital has thus been made use of. The administrative provisions of the Company's Deed of Settlement differ but little from the clauses in Benefit Building Society Rules, but the legal position of the proprietor is essentially different. Under the existing law of partnership, to which some modification is confidently anticipated ere long, the liability of a Shareholder in a Joint Stock Company is not subject to any limit, as regards the public with whom the company has trading operations, but only in respect to his co-

partners in the concern. Hence, building companies have advanced but slowly in public favour; although the actual amount of risk is very small, when the operations of the association are directed to the extension of rising towns, by building in the suburbs or other improving localities, or to the establishment of habitations upon new and desirable sites, to which the tastes of the affluent or the necessities of the industrious have directed public attention. For this latter case, Building Companies, under the name of Suburban Village Associations, have been mainly designed, and they have met with the sympathy and support of all who are interested in the welfare of the poorer inhabitants of our crowded cities.

37.—In this country there is an element which, independent of the attractiveness of a good investment, and despite apparent partnership liability, may be relied upon, in carrying out plans designed for the improvement of the condition of the industrious classes. This element is a feeling of benevolence, mingled with a sense of the duty, which devolves upon the possessors of larger property, to protect and succour those who are placed beneath them, perhaps, in position and fortune, but through whose agency a great portion of their own wealth is created. This duty is felt to be the more stringent, because it is almost impossible for the poor to do anything, themselves, towards bettering their condition in respect to their dwellings.

38.—Were this feeling wanting, it is considered that parishes and unions might do much towards improving the condition of mechanics and rural labourers, with their families, by taking the matter into their own hands, and by erecting comfortable dwellings, as Suburban Villages, to be let at a rent that would merely repay the cost; not, perhaps, indiscriminately to any one, but to those who, by their general good character, should seem most entitled to a preference. There is arising an opinion, that with such a system carried to some extent, there would be less occasion for Workhouses

upon their present scale, and the morals of the lower orders would be greatly improved. The difficulty in the way of improving the dwellings of the labouring classes, whether in town or in the country, lies in a small compass, as it is purely a financial one ; and there is nothing to be done, but what every one must perceive to be necessary, and what any ordinary builder can execute.

39.—Of the necessity of measures for the accomplishment, in a systematic manner, of the object aimed at by associations of the nature of those referred to in this chapter, the public mind has been sufficiently convinced by the disclosures lately made concerning the condition of the metropolis. The recent metropolitan improvements, considered in conjunction with the data furnished by the weekly bills of mortality, demonstrate, to conviction, the very great extent, to which the debased condition of the poorer classes of the population arises from the insufficiency and wretchedness of their habitations. Much sympathy has been excited and has been called into active exertion by these disclosures, and not without good result. But, of all the pernicious influences, to which the poor of the metropolis and other large towns are exposed, there is not one which has so direct an effect in impeding the efforts of charity in their behalf, or in neutralizing the result which may, by constant exertion, have been effected by that charity, as their dense and promiscuous agglomeration in large numbers in filthy and insufficient dwellings. Nor can we reasonably hope that the strenuous endeavours of those benevolent persons, who seek to promote the education of the rising generations of the industrious classes, can be adequately recompensed, while the objects of their solicitude are, by the circumstances of their condition, compelled to live among scenes of disorder, along with crowds of adults congregated together in a manner which precludes any attention to decency or comfort, and coming into continual contact and intercourse with the most lawless and depraved

individuals. No wonder that, under these circumstances, vice is rendered so familiar to the youthful mind, that it becomes almost incapable of recognizing its evil. The associations in question desire to lessen the mischief, and to benefit the community at large, by building villages at a moderate distance from the metropolis.

40.—Although the class, for whose immediate welfare they are mainly intended, can hardly be expected, at once, to accept the advantages held out to them; yet the gradual removal of those whose circumstances permit, viz. clerks, artizans, and others of limited income, for whom the associations desire to erect dwellings in the first instance, will afford to others the opportunity of obtaining superior habitations on more favourable terms, and less exposed to the malignant influences peculiar to their former localities. It is hoped that the force of example, combined with educational and other remedial measures, will, ultimately, induce the poorer classes to avail themselves of the benefits held out by such Suburban Societies. In accordance with this plan, the formation of villages is suggested at distances of from four to eight miles from London or other important towns provided with Railways, and in the immediate vicinity of Stations. " These villages " to consist of houses built in pairs, averaging six cottages " to an acre, and combining all the advantages which the ap- " plication of practical science can confer, as to construction, " ventilation, drainage, and architectural arrangement, and " with a good garden to each."

41.—In the last paragraph we have, to illustrate the principle, referred to a prospectus, in which it is stated, that to erect two such villages, with suitable public buildings, an estimated capital of £250,000 would be required; and, in order to bring the shares within the means of those for whose benefit the association is principally formed, the amount is divided into 50,000 shares of £5 each; upon which, after the deposit of 6d. and a call of 4s. 6d. per share have been paid,

the remaining £4 15s. may be made up by instalments, suited to the progress of the works, at the rate of not less than £1 per share per annum.

42.—Suburban Village Associations do not hold forth the prospect of a large return, in the shape of profit, to the share-holders, but rather invite support to undertakings having for their object the amelioration of the sanitary condition of persons of restricted income ; at the same time, it is felt that, in order to ensure a proper extension of the plan, a reasonable rate of interest should be secured to the members for their investments. It is proposed, therefore, that the rents should be sufficient, after providing for all disbursements, contingencies, &c., to return a dividend of about five per cent. per annum, on the capital of the association.

The provisions of these societies are chiefly adapted to the requirements of the industrious inhabitants of towns, who derive from their labour small incomes, upon which they may fairly reckon, and are thereby enabled to join in transactions, which require the continuation of periodical subscriptions for a certain number of years.

SECTION 2.

Remarks on the Rural Districts.

ART. 43.—With country dwellers, however, the case is some-what different ; the distance at which they are separated from each other prevents them from joining, in great numbers, in mutual association ; and they have neither the experience nor the busy habits which belong to the inhabitants of towns. Besides this, the establishment of land investment societies

in agricultural districts is much impeded by other causes. The growing tendency to accumulate wealth in the hands of a few persons is traceable in the division of landed property, all over the country. The many thousand small freeholds which might be found a century and a half ago, scattered over the length and breadth of our island, have been gradually collected into large estates, the property of a few wealthy individuals.

44.—A corresponding change has taken place in the character of the agricultural classes. The old Yeoman, with his few paternal acres of land, his high spirit and independence, has given place to a class of tenants sometimes farming on a greater scale, but holding, by leasehold tenure, the lands which were formerly divided into separate freeholds. The larger number of field labourers employed by them, and, in some cases, by the owners of the soil, have, in general, no real property, but dwell in small cottages, pay their rents in frequently recurring instalments, or are liable to be ejected upon very short notice.

45.—Many persons, who are not practically familiar with the rural districts, imagine that the once existing mutual footing between labourer and employer yet subsists. *Such now, is not the case, at least, in most parts of the kingdom. In Scotland, perhaps, the agricultural labourers are a less distinct and separated body than in England, as regards their employers. In this country, the great bulk of the farm labourers form a distinct class, inhabiting the outskirts of the small towns and villages, which they have almost entirely to themselves; and, as they have neither capital nor any resource beyond their daily labour (for which also there is no certainty of continued employment), they earn a most precarious existence. In some cases, the sites of the villages belong to a few proprietors, sometimes to only one, but it by no means follows

[* See the valuable reports, in 1849-50, of the Commissioners of the Times and Morning Chronicle on this subject.]

that they are employed, either on the farm of which a village
site may form a part, or even on the property of which the
farm may be but a portion.   Their labour is at the command
of any one who is disposed to hire it, so that, what with un-
certainty of employment, and the fluctuation in the amount of
their wages, they pass their lives in constant oscillations be-
tween their cottages and the workhouse, with no alternative
beyond, but starvation or the grave.   Such is the general sys-
tem which prevails through England.   With the causes which
have concurred to produce this system, we have, at present,
nothing to do.   It appears, however, that they are still in
action, and country residents may, even now, observe that the
tendency of large estate-holders is to extend their boundaries,
and absorb the small freeholds which may yet be left around
them.

46.—The effect of this concentration of property may be
regarded as, generally, unfavourable to the lower classes.
It has the effect described by *Archbishop Whately :—
" Where a large proportion of the wealth of a community
consists of the enormous and overgrown fortunes of a few,
that community has by no means such promising prospects in
respect to the intellectual and moral advancement of the rest
of the people, or even of the possessors of those fortunes,
with one which enjoys a greater diffusion of wealth."

The landlord, speculating upon the fluctuations in the value
of landed property, is unwilling to grant long leases upon
terms which, though they may appear equitable at the time,
may, afterwards, give, what he considers, an undue advantage
to the tenant, as the land improves or the value of its pro-
duce rises in the market.   The farmer, on the other hand,
is, naturally, unwilling to toil for the good of others, and he
refrains from making those improvements in the land, of which,
though it may ultimately increase its value, he himself may
never reap the fruits ; besides this, although a large quantity

* *Lectures on Political Economy*, No. 8.

of land is still waste and uncultivated, yet the trade of a
farmer, like almost every other calling in this country, is con-
siderably over-stocked; the number of farms required being
greater than the number of farms to be had, and competition,
with all its unfortunate results, ensues; the farmer agrees to
pay an unreasonable rent, rather than be cast idle upon the
world; to maintain his family and pay that rent he has recourse
to a system of strict economy; and, in this system, the first
and most obvious step is to diminish the wages of his farm
labourers.   Upon the latter class, the casualties incident on
agricultural pursuits, fall with greatest severity; every unfa-
vourable change in our uncertain climate; every fall in the
value of the produce of the soil, arising either from a glut of
the market or from legislative measures, compels the farmer to
shorten the wages, or, more generally speaking, to increase the
misery of his labourers.

47.—The example thus set by the lease-holding farmer,
which is only justifiable on the ground of absolute necessity,
is, too often, eagerly followed by the landed proprietors.
The labouring classes are thus reduced to a condition of
great poverty, many of them being dependent on private
benevolence for their support during a great part of the
year; on the other hand, it too frequently happens that
farmers in the present day take more land than they have
capital to manage.   Hence, when a bad season arrives, they
are driven to their wit's end to know what to do.   Their
labourers, at most times, are incompletely employed, and,
when dismissed, are driven on the parish.   This, in the shape
of an increased Poor-rate, recoils on the farmers themselves.

Section 3.

The necessity for Home Colonization or Systematic Emigration.

ART. 48.—Of the necessity which now exists for an imme-
diate, extensive, and practical scheme for the amelioration of
the condition of the labouring portion of the population,
agricultural and mechanic, there is no need of much de-
monstration.   At no former period in the history of this
kingdom has such extreme misery existed, as at present ;
for, although it be true that the general condition of the
people has vastly improved during the last 200 years, yet it
cannot be doubted but that there is, now, a class absolutely
much more numerous than at any former period, which suffers
to the extreme limit of physical endurance ; the class com-
posed of those who, in the excessive supply of labour, which,
owing to the redundancy of population, exists in the present
day, are unfortunate enough to be placed at the bottom of
the scale.   Besides this, the over-stocked state of the liberal
professions ; the severe competition among tradesmen ; the
precarious employment, scanty food, and low wages of the
agricultural labourers in many parts of the kingdom ; the
deplorable physical condition and social abasement of immense
numbers of the artizans who inhabit our larger towns; together
with the fact that there exist multitudes, who habitually work at
sedentary and unwholesome occupations for 13 or 14 hours a
day, but whose toil is so ill requited, that they are never free
from the care and hopeless anxiety which cannot but attend
on a state of poverty, only one degree removed from the com-
pletest destitution ; and who immediately sink, irretrievably,
to the lowest condition, when sickness, which is constantly
hovering over their debilitated frames, at length arrests the
efforts of their feeble hands ; all, categorically elicited to the
minutest detail, by the enquiries which have been set on foot
during the last 20 years, and fearfully confirmed by the facts
which are continually brought to our notice, with horrible

vividness, in the mere perusal of the daily papers, must, collectively, be considered as the consequences of one leading cause: viz. the continual increase of the population, without a simultaneous increase of the means of employment; and, taken together, afford an argument (than which no stronger could be adduced in proof of any assertion), that, in reality, there does, now, exist an urgent necessity for taking immediate and systematic measures towards greater improvement of their condition.

49.—This can only be effected by laying open a wide field of employment, in order to lessen the competition of capital with capital, and labour with labour, which is the permanent cause of distress. The ancient saying still holds, that when a parent is unable to make suitable provision for his offspring, it is time that the needy children should quit the parental roof and seek elsewhere for their daily bread. It has been suggested, that the furtherance of this object might be assisted by systematically endeavouring to reclaim the *available* tracts of uncultivated land in the United Kingdom. *These, in Ireland, occupy an area of nearly four million acres, of which one million and a half are reclaimable for the spade and the plough (with promise of great fertility), and about two millions and a half more are suitable for pasture. But a more adequate remedy would be found in the successful colonization of the distant territories of the British Empire. These include vast tracts of land of the the most exuberant fertility, only wanting capital and labour to cover them with abundant harvests, but, wanting these, are now covered with useless vegetation, and give shelter and sustenance to beasts. We may here be allowed to quote a striking remark of the distinguished economist, Mr. Mill—
" The art of Colonization is but to carry the superfluity of the
" one part of this Empire to repair the deficiency of the other ;
" to cultivate the desert by applying to it the means that lie

* [See note to page 167 ; only two-thirds of the uncultivated mountain and boglands are considered *available*.]

" idle at home; in one word, to convey the plough to the field,
" the workman to his work, the hungry to his food." It may be
affirmed, with this author, that Colonization, in the present state
of the world, is the very best affair of business in which the ca-
pital of an old and wealthy country could possibly be engaged.

50.—The following Chapter contains a description of a
plan for effectually accomplishing the reclamation of the
waste and half-cultivated lands in Ireland, by purchasing
those estates, and working them with English capital ; and,
while raising up a body of independent yeomanry in that
country, to diminish the competition for farms, and give
increased employment to agricultural labourers. The same
plan is, also, equally applicable to the systematic Colonization
of our foreign possessions, and thus affords a practical
method of improving the condition of the industrous classes;
while, at the same time, it offers a lucrative mode of invest-
ment to those, who may be willing to advance the requisite
capital. The pressure we have described can, in our opinion,
be continuously alleviated, by a well-organised and vigorous
system of emigration and of colonization combined with it,
the only certain system of relief; unless, as has been said in
reference specially to Ireland,* " we wait for the operation of
famine and pestilence, to remove that, now, super-abundant
population, which presents an insuperable obstacle to ultimate
improvement. Even in a purely economical view of the
matter, let any one compute carefully the annual cost of
maintaining a given number of persons, to say nothing of
their probable increase, for whom no profitable employment
can be found; then let him estimate the outlay necessary,
once for all, to settle, as colonists, the same number of per-
sons, in such a way as to enable them to support themselves
in plenty; and let the annual *permanent* burden of the former
procedure be compared with the *interest* of the sum required
for the other;" conviction must follow.

* *Archbishop Whately, App. D. to 3rd Ed. of Lectures on Political Economy.*

CHAPTER IV.

FREEHOLD LIFE ASSURANCE AND INVESTMENT APPLIED TO SYSTEMATIC COLONIZATION.

" *It is no longer a question whether emigration should be encouraged. Emigration is, now, indisputably shown to be the great outlet for these Islands. As surely as Niagara relieves the inland seas of America, emigration is the door of safety for our human redundance. But wo to the state that watches unconcerned the spontaneous remedies and escapes of a miserable crowd. As it values its own safety, it must take the matter in hand, direct the method, and guide the issues of the mighty operation. Future ages may rue the present neglect.*"—TIMES.

ART. 51.—In this and the succeeding chapter there are three leading principles under review, in reference to the important question of systematic emigration and colonization. The first is the basis of the plan of Freehold Life Assurance which, at last, is attracting so much attention, and was advocated by its originator, Mr. William Bridges, as far back as 1842,* in a very able exposition of his views, now out of print, upon the subject of colonization. The second principle is involved in the well-known system supported by Mr. Wakefield, of fostering and raising the status of emigrants, by transferring colonial land to a superior class of persons, not gratis, as heretofore, but on payment of a moderate purchase-money, and in applying the proceeds to providing the colonies with healthy labourers, dispatched, to a

* Freehold Assurance ; or, the Extension of the principle of Life Assurance to Tenancy and Colonization.—By William Bridges. 1842.

certain degree, at the national expense.* The third is as yet untried, and we accept the responsibility of the recommendation. It consists in the establishment of Benefit Emigration and Colonization Societies, which, by the instrumentality of the co-operative association of the industrious classes, can be made to supply that which is most essential, and yet wanting in the first two principles : viz., to create the necessary funds to enable emigrants, entirely through their own efforts, to become purchasers of land and other colonial requisites.

52.—The nature of a Freehold Life Assurance Company may be easily and concisely explained. Suitable tracts of country being purchased from the existing proprietors, would, unless already in the desired state, be drained, fenced, and otherwise adapted for immediately profitable cultivation, at the expense of the company, and, so improved, be divided into small allotments, furnished with the requisite buildings, &c. These allotments would then be disposed of, by conveying the fee-simple thereof to chosen persons (who could, at once, enter upon and profitably cultivate the same), subject to a terminable rent charge, a part of which would consist of the interest of the capital expended, and would be, in point of fact, a rent like that which, in the usual relation of landlord and tenant, is paid for the hire of land; while the remainder would consist of the premiums, which would be paid by the allottees, on the ordinary principles of Life Assurance, in order to secure, for each, the payment at his death *of a sum equal to the estimated value of his particular allotment.* On the death of one of these original Allottees, the sum assured would not be paid to his devisees or representatives, but, in lieu thereof, they would

* [The Emigration commission, appointed in 1840, has power to devote the proceeds of Land-Sales to emigration, in the ratio of free passages for five adults in respect to every £100 worth of land purchased; but the purchaser himself and family cannot receive a passage under this privilege. The Poor-law Board have also a restricted power to sanction allowances towards free passages out of parochial money.—(*See* 4 & 5, *W. IV. c.* 76 ; 11 & 12, *V. c.* 110 ; *and also Land-Sales Act,* 5 & 6 *V., c.* 36.)]

become the possessors of an unincumbered Freehold Estate; The payment of the annual rent charge to the company during the life of the first occupier would be secured by a mortgage on the property.

53.—This scheme is considered to be peculiarly fitted, not only for the improvement of our distant possessions, but also for Home Colonization, more particularly in the amelioration of the present condition of * Ireland, as in that country extensive tracts of land might be purchased at so low a rate (as has been determined by actual investigation), that, if they were adapted to the proposed purpose with proper skill and due economy, the rent charge, estimated as above, need not greatly exceed the sum which, under the present system of Landlord and Tenant, is frequently paid as rent alone, for even temporary occupation ; while it would, at the same time, be sufficient to realize a large interest for the capital originally expended.   † The plan, no doubt, offers a means of bringing about a complete change in the social condition of that portion of the kingdom, by creating independent yeomen, possessed of the strongest inducements to industry : viz., that the fruits of their exertion would be all their own ; while a very high state of cultivation might be expected in the course of time, from the concentration of the care and diligence of each farmer on a limited acreage.   With reference to the last observation, we will here insert some judicious remarks of an observant and experienced traveller, Mr. Laing, although they form rather a long digression.

54.—" If we listen to the large farmer, the scientific agriculturist, or the political economist, good farming must perish with large farms ; the very idea, that good farming can

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* [" Were the security of property and the empire of the law as well established in Ireland as in Britain, land would certainly sell higher in the former than in the latter. Most Irish estates are, comparatively, in a state of nature, and afford capacities for the profitable outlay of capital that are all but unknown in England."—Mc Culloch's British Empire.]

† *See also Note to Art.* 12 *re Freehold Land Societies.*

exist, unless on large farms cultivated with great capital, they hold to be absurd. Draining, manuring, economical arrangements, clearing the land, regular rotations, valuable stock and implements, all belong, exclusively, to large farms, worked by capital and by hired labour. This reads very well ; but if we raise our eyes from their books to their fields, and cooly compare what we see in the best districts farmed in large farms, with what we see in the best districts farmed in small farms, we see (there is no blinking the fact) better crops on the grounds in Flanders, East Friesland, Holstein, in short, on the whole line of arable land, of equal quality, of the continent from the Sound to Calais, than we see on the line of British coast opposite to this line, and in the same latitudes, from the Frith of Forth all round to Dover. Minute labour on small portions of arable ground gives, evidently, in equal soils and climate, a superior productiveness, where these small portions belong in property (as in Flanders, Holland, Friesland, and Dit-marsch in Holstein), to the farmer. It is not pretended by our agricultural writers, that our large farmers, even in Berwickshire, Roxburghshire, or the Lothians, approach to the garden-like cultivation, attention to manures, drainage, and clean state of the land, or in productiveness from a small space of soil not originally rich, which distinguish the small farmers of Flanders, or their system. In the best farmed parishes of England or Scotland, more land is wasted in the corners and borders of the fields of large farms ; in the roads through them, unnecessarily wide, because they are bad, and bad because they are wide ; in neglected commons, waste spots, useless belts and clumps of sorry trees, and such unproductive areas, than would maintain the poor of the parish, if they were all laid together and cultivated. But large capital applied to farming is, of course, only applied to the very best of the soils of a country. It cannot touch the small unproductive spots,

which require more time and labour to fertilize them, than
is consistent with a quick return of capital. But, although
hired time and labour cannot be applied beneficially to such
cultivation, the owner's own time and labour may. He is
working for no higher returns, at first, from his land than a
bare living. But, in the course of generations, fertility
and value are produced; a better living, and even very
improved processes of husbandry, are attained. Furrow
draining, stall-feeding all the summer, liquid manures, are
universal in the husbandry of the small farms of Flanders,
Lombardy, and Switzerland. Our most improving districts,
under large farms, are but beginning to adopt them. Dairy
husbandry even, and the manufacture of the largest cheeses,
by the co-operation of many small farmers; the mutual
assurance of property against fire and hail-storms, by the
co-operation of small farmers; the most scientific and ex-
pensive of all agricultural operations in modern times: the
manufacture of beetroot sugar; the supply of the Euro-
pean markets with flax and hemp by the husbandry of
small farmers; the abundance of legumes, fruits, poultry,
in the usual diet of the lowest classes abroad, and the total
want of such variety at the tables even of our middle
classes, and this variety and abundance essentially connected
with the husbandry of small farmers—all these are features
in the occupation of a country by small proprietor farmers,
which must make the enquirer pause before he admits the
dogma of our land-doctors at home, that large farms, worked
by hired labour and great capital, can alone bring out the
greatest productiveness of the soil, and furnish the greatest
supply of the necessaries and conveniences of life to the in-
habitants of a country."

55.—We will not, at present, enlarge on the beneficial
results, which must obviously ensue from the application, on a
large scale, of the system we have described, if properly
carried out. A few remarks and suggestions present them-

selves with reference to its practical working.   In the first place, it appears that the system of pure Life Assurance for the whole term of life might, in some cases, be conveniently modified.   The adoption of the principle of payments for a fixed term of years, independent of life contingency, might sometimes be preferable ; as, for instance, in the case of a person whose life would not be accepted at the ordinary rates of life assurance, but who, from skill and knowledge of farming, might be so desirable as one of the allottees, that it would not be advisable to exclude him from participating in the benefits offered by the association.   It may, likewise, be remarked that the attraction of Benefit Building Societies has been found to consist in the fact, that they hold out a prospect of gratifying the desire, which is so universal, to acquire, during life-time, possession of property, unincumbered by charges of any description.*   These considerations induce us to suggest, that the tenants should be allowed by the company the option of 3 plans : viz.,—

1st. To pay an Annuity, including repayment of principal, with interest in advance, for the whole life ; or—

2nd. To pay the same for any term of years, to be selected at will by them, independent of Life Contingency.   The property, passing to their heirs in case of death, with the remainder of the encumbrance, for the unelapsed number of years ; or—

3rd. To allow the payments to be made upon a principle combining Life Contingency and Terms Certain, so that, if the life assured live over the term of years, which he will be at liberty to select as most suited to his means and wishes, he may have the property free of all encumbrance ; and, if he die beforehand, it may pass in a similar state to his heirs.

56.—These three main distinctive plans admit of a great variety of adaptation. One, however, will be specially advisable.

* [Refer to Chapter viii. in Part 1., relative to Life Assurance applied to Benefit Building Societies.]

It is to make the payments as small as practicable for the first two or three years, so as to allow the farmer to get settled, and then that the rates should be increased. We would leave it at the option of each farmer to select his term and mode of payment, provided he offered satisfactory security.

57.—*Example* 1 :—A life aged 30 might be assured for £2. 4s. 8d. per cent. on the half premium system, for the first two years; that is, during that time half the premiums might stand over on credit, as a trifling debt on the policy, to be paid off when convenient, and, if the first year's interest on the loan be permitted to stand over until the end of the same period, the farmer would have ample time to get his land in order. His payments to the company to liquidate a debt of £100, with interest at 6 per cent., within his lifetime, would be £2. 4s. 8d. at once and £8. 4s. 8d. afterwards, with this further advantage, that, on his death occurring, early or late, all claim of the company upon the property would cease.

Other varieties of whole Life Policies might be effected, on ascending or decreasing scales.

58.—Example 2 :—

If the farmer, on account of his age, do not care to avail himself of Life Assurance, he can make his repayments by a table for a limited term of years, leaving his heirs to finish the same, should he die beforehand.

Thus, if the advance be made for 19 years, the rate of annual *repayment* per £100, principal and interest, at 6 per cent. would be £8. 19s. 3d. at the end of each year.

If the repayments do not begin until three years are expired, his repayments will be £10. 1s. 4d., for a term of 19 years, as the debt to be liquidated would be then £112. 6s. 2d, instead of £100, from the arrears of 2 years interest. Similarly for other periods and rates of interest.

59.—Example 3 :—

If it be desired, he may combine the principles of Life Assurance and Terms Certain. Thus, at age 30, a healthy

life may effect an ' Endowment-Assurance' policy for £100, payable in full at death, or at 55, whichever happen first, in consideration of a yearly payment of 3*l*. 19*s*. 10*d*.   To liquidate an advance of £100 his first payment would be 3*l*. 19*s*. 10*d*. and 9*l*. 19*s*. 10*d*. afterwards until the age of 55, if he should live thereto ; all debt ceasing if he die previously.

60.—In like manner, the premiums may, also, be paid half-yearly or quarterly, at will.

61.—It ought to be remarked, however, that, as very many of the lives assured (on account of the necessity of centralization of the company's mortgagors or borrowers into as few localities as possible), would be co-existent under the influence of the same foreign climate, or of the effect of other contingencies, no precaution would avail to protect the Life department against the loss, which a calamity, such as a fatal epidemic, might occasion ; and, consequently, for some of our colonies, the objects of the plan proposed, would possibly not be attainable at the ordinary average rates of premium.

62.—A few general objections have been offered by those, who have been unwilling to believe in the practicability of the scheme. Amongst others, it has been urged that the principle of Freehold Life Assurance creates an immoral tendency, by giving to the heirs of a farmer an interest in his death. But the same objection applies, and with equal truth, to general life assurance, to many cases of life annuities, and even to the law of hereditary succession, and is, in point of fact, founded on a gratuitous assumption not borne out by experience ; as it is only in some instances of Burial Societies among the most ignorant and degraded peasantry, that pecuniary interest in the death of an individual has become a regular incentive to crime.

63.—It has also been said, that, when the Redemption annuity extends throughout a man's life, every involuntary omission of the payments, which must be expected under the nature of the engagement, will either forfeit the policy, or cause a heavy debt to be added, with accumulated interest, to his other

payments, thereby increasing his difficulties, and rendering the recurrence of omissions more and more probable.

This trifling obstacle can be surmounted by a properly adjusted table of fines for irregularity of payment, and by a provision for the gradual liquidation of any extra debt, caused through unintentional neglect.

64.—Again, some fear has been manifested lest an unsuitable quality of land would fall to the company in the locality of its operations.   This contingency can only be averted by the careful discrimination of the parties employed in the wholesale purchase of land to be allotted.   There are, undoubtedly, many acres of land in Ireland, in this country, or in the colonies, which could not be cultivated with advantage; but there are also many, which require but the plough to give proofs of their fertility.   Before concluding a purchase, it is to be expected that the company would avail itself of the experienced opinion of practical farmers, and other persons of judgment, both in and out of the neighbourhood, as to its probable capabilities.   There are, generally, certain leading points which would scarcely be overlooked : viz.,

1st.   An enquiry into the nature of the soil, its chemical composition and capabilities for drainage.

2ndly.   The various peculiarities of climate, by which the land would be influenced ; whether the situation be too high, and thus unfavourably exposed to bleak winds or strong sea breezes.

3rdly.   The facilities which the locality offers to the transfer of the produce of the soil to a good market.

65.—Leaving aside theoretical discussion, we have evidence of increased disposition on the part of the public to encourage, by the aid of these principles, systematic emigration and colonization, in the various associations which, under the names of emigration and colonization assurance companies, have lately been established, for the purpose of

carrying them into effect. They state that, formerly, colonial lands were given away to emigrants, who were left to their own scattered, irregular, and unsupported efforts ; no means being provided to advance their interests at home, or to supply labour to the settlement. This was Emigration without Colonization.

That, latterly, this evil has been partially remedied by the formation of companies in England, which, having obtained colonial land, retailed it to emigrants at various prices ; applying the proceeds, after deducting expenses and profits, to providing a limited quantity of labour, and effecting other important objects. The main value of this improvement " consisted in the agency of the companies in the mother country, promoting and guiding emigration, directing enterprise, opening trade, representing grievances, combining efforts, and removing obstacles and difficulties beyond individual power to overcome." The capital of emigrants was, however, the fund by which this was effected. It was Colonization by Emigrant Capital alone.

66.—The new companies contemplate not only emigration, but systematic colonization, by introducing a new element, viz. by bringing, not only the capital of the emigrant, but that of England, together, to bear upon the wilderness ; so as not to require the emigrant to pay for land entirely out of his capital, but out of the profits to be realised by the joint operation of his own labours and of the company's fostering exertions. They desire to effect Colonization by English and Emigrant capital united.

67.—The first inducement to emigrants is presented in the adapting for them wide tracts of land to productive agricultural enterprise, through arterial and thorough drainage ; by the erection of convenient farm-houses and cottages ; and by the laying out of settlements, divided into such allotments, as may be found expedient for the purpose of sale and disposal. When the land has been so prepared, it would be let

out, with other requisites, to the emigrating colonist who has but small means, that he may, by the payment of a rent charge, during a specified term of years, at the end of the period, become absolute possessor of the land for ever. This rent charge being calculated on the freehold assurance principle of affording to the shareholders of the company a fair rate of interest for the use of their money, and of re-placing the capital expended.

68.—The companies to which we allude are not all confined, in their operations, to one locality; for it is generally acknowledged, that the principles both of freehold life assurance and freehold investment may be advantageously adapted to the facilitating of an extended scheme of colonization of the vast tracts of country which, in almost every part of the globe, form appendages to the British empire. The unprecedented extent to which emigration takes place in the present day is well known; the number of persons* annually leaving

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*[The following figures are extracted from the 10th Report of the Emigration Commissioners:—

"EMIGRATION FROM THE UNITED KINGDOM DURING THE 25 YEARS, FROM 1825 TO 1849 INCLUSIVE.

Years.	United States.	British Colonies.	Total.	Years.	United States.	British Colonies.	Total.
1825	5,551	9,340	14,891	1838	14,332	18,890	33,222
1826	7,063	13,837	20,900	1839	33,536	28,671	62,207
1827	14,526	13,477	28,003	1840	40,642	50,101	90,743
1828	12,817	13,275	26,092	1841	45,017	73,575	118,592
1829	15,678	15,520	31,198	1842	63,852	64,492	128,344
1830	24,887	32,020	56,907	1843	28,335	28,877	57,212
1831	23,418	59,742	83,160	1844	43,660	27,026	70,686
1832	32,872	70,268	103,140	1845	58,538	34,963	93,501
1833	29,109	33,418	62,527	1846	82,239	47,612	129,851
1834	33,074	43,148	76,222	1847	142,154	116,116	258,270
1835	26,720	17,758	44,478	1848	188,233	59,856	248,089
1836	37,774	37,643	75,417	1849	219,450	80,048	299,498
1837	36,770	35,264	72,034				

Total...2,285,184, viz. United States, 1,260,247, Brit. Cols. 1,024,937.

Average Annual Emigration from the United Kingdom for the last twenty-five years . . . . } 91,407"

the shores of this kingdom being now of very great magnitude. It is, however, an old remark, that emigration, to any extent, in so far as it is casual and unsystematic, does not form one step towards colonization, properly so called; nor, indeed, we may add, can it be of much advantage to this country, as it cannot permanently diminish that disastrous competition both in labour, and capital, which, as before stated, is the origin of distress. On the one hand, the

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A comparison with the rate of increase of the population is interesting : by the Census of 1821 the population of the United Kingdom was... 21,193,458

1831 24,306,719

1841 26,916,991

The apparent average annual increment of population in the 10 years from 1821 to 1831 is 1.40 per cent.; that in the next period only 1.02 per cent ; we observe, therefore, the important effect, which Emigration has produced on these results.

2. From the Colonies of Great Britain, alone, irrespective of the United States, whither a large number proceed, it is stated that a sum of upwards of a million and a quarter sterling is annually sent through Liverpool houses from persons who have emigrated, to enable poor relatives at home to pay their passage to the same quarter of the globe.

3. The following memoranda, relative to those localities to which Emigrants mainly resort, are valuable :—

" Country.	Acres.	Remarks.
Australia, Western .	21,000,000	Amount purchased in fee and in occupation, about 1,500000 acres. The climate is temperate and has been generally found to be healthy to Europeans. There are no droughts like other parts of Australia.
New South Wales ...	about 9,500,000 of grazing land is in occupation.	About 200,000 acres have been cultivated. Victoria, lately made a separate colony, contains about 63 or 64 millions of acres, and presents many attractive features for an Emigrant. The soil is about the best in the whole Island.
Van Diemen's Land.	Contains 23,437 square miles.	Has attained a higher perfection, in an agricultural point of view, than any other of the Colonies.
South Australia	192,000,000 acres.	The only results that have occurred there of any note, have been the discovery of some valuable mines. This division, for the most part, has been unexplored. About 600,000 acres have been the amount of land sold.

capitalist (speaking generally), will not divert his attention to colonial investment, while the supply of labour which would alone make such investment profitable, is insufficient or fluctuating. On the other, the poor labourer, who is unable to find continuous employment in this country, and who is, therefore, willing to emigrate, and carry the energies, which are superfluous at home, to any part of the world, where he

" Country.	Acres.	Remarks.
"	"	The demand for labourers in Australia is yet even great; also for mechanics, such as blacksmiths, carpenters, and bricklayers; but for artizans and mechanics of a high order there is scarcely any demand.
New Zealand Islands	60,000,000	Perhaps in the whole world there is not a superior climate. Soil admirably adapted for Colonization.
Cape of Good Hope, and Natal	15,000,000 in Natal alone.	Climate good. Presents much attraction for small capitalists. The cultivation of coffee, cotton, sugar and even indigo and rice have been attended with good results.
Canada, Upper	64,000,000	There are about 4,000,000 acres available. Soil fertile. Climate: cold of winter not so severe as in Lower Canada. In addition to indigo, cotton, and tobacco, its mulberry trees are cultivated.
" Lower	137,000,000	Nearly 10,000,000 acres available for settlement. Winter severe. Climate generally favourable, but there are many unhealthy districts.
New Brunswick......	18,900,000	12,300,000 vacant, 6,600,000 granted, only 50,000 cleared.
Newfoundland	2,300,000	Soil productive, if properly cultivated; but emigrants, and the colonists themselves, pay more attention to the fisheries."

The whole of the British provinces in North America are calculated as embracing 4,000,000 square miles.

4. The return also gives an account of the persons and vessels employed by the Emigration Commissioners, and of the receipts and disbursements for the last three years. The funds at the disposal of the commisssioners have been £96,254, voted by Parliament; £517,011, contributed by the colonies; £27,050, deposits made with the commissioners for the purchase of land; £76,580, contributed on behalf of emigrants; and £8,298, miscellaneous, including profits by investment—total £725,194. The disbursements balanced against these amount to £677,459.]

may turn them to account, is compelled, by the circumstance of his poverty, to remain where he is and suffer a life of dependence and distress.   In this view, it is plain that the majority of emigrants must consist of persons whose means, though too scanty to shelter them from the pressure of competition at home, are yet sufficient to pay the cost of their passage and to maintain them for a time on their arrival at their destination ; a preliminary outlay which absorbs a large proportion of their means, so that they have little left for prospective improvement.   Emigration, therefore, did not promise to be of much utility in relieving the distress of the labouring classes at home, or in furthering the colonization of our foreign possessions, until Mr. Wakefield proposed a system of colonization, the main principles of which, viz., the sale of colonial lands at a uniform price, and the application of the proceeds of such sales to the carrying out of young and healthy labourers of both sexes, deserve general approbation. The scheme was, indeed, evidently calculated to obviate the defects which have been indicated as attaching to unsystematic emigration, as its application would obviously tend to relieve the pressure in the labour market, and, at the same time, offer to capitalists a good prospect of advantageous investment in colonial land, giving assurance of the certainty of obtaining the supply of labour requisite to make it productive and profitable.   Its practical application, however, is open to several objections, which have given rise to various modifications that have been under discussion.   Thus, on considering the circumstances of a colony to be constituted according to Mr. Wakefield's theory, it is evident that the necessity for a plentiful supply of labour would be urgent at the beginning of its existence, when, nevertheless, the land sold would probably be of so small extent, that the sums arising from such sales would be inadequate to furnish that supply. Hence, it has become a question of importance, whether it might not be expedient for the infant colony to raise a fund for the

importation of labour, by means of a loan, negociated on the security of future land sales ; it being supposed that, with a guarantee from the mother country, such a loan could be obtained at a moderate rate of interest. The expediency of a proceeding, under the above circumstances, has been indicated with great clearness by the late Mr. C. Buller, whose opinion must be always entitled to respect :—

" No doubt, great caution would be requisite in thus fore-stalling the resources of a colony ; but, on the other hand, a debt contracted for such a purpose is not an unproductive waste of capital, such as the national debt, nor is it to be likened to the debts of individuals, contracted for the enjoy-ment of the moment. It is rather to be compared to those debts which wise landlords often deliberately contract, for the purpose of giving additional value to their estates, or to the loans by which half the enterprises of trade are undertaken, and which are to be regarded as resources of future wealth, not embarrassment."

We shall not occupy our space by making any reflections on these judicious remarks, but shall proceed to indicate, briefly, the advantages which the principle of Freehold Life Assurance offers in respect to Colonization.

69.—It is plain that Mr. Wakefield's system, in its original shape, only offers the means of advantageous emigration to la-bourers, and holds out, thereby, an inducement to capitalists to direct their attention to the colonies. But it is not of equal bene-fit to that numerous class, so eligible as colonial emigrants, who are possessed of a small amount of capital, and whose intelli-gence and activity fit them for a situation above that of the hired labourer. The necessary outlay in the purchase of land for improvements thereon, and of the implements of farm-ing, is, moreover, not unfrequently, so large, compared with the means at their disposal, as, for some time, to cripple their exertions.

70.—The true Art of colonization consists, therefore, not in

the creation of over-grown farms, in the hands of a few capital-
ists, with hired labourers, whose condition is not much better
than it would have been in England; but in the affording of
facilities to the emigration and subsequent well-doing of the
medium class of persons, who are, even at home, by dint of in-
dustry and prudence, accompanied with the possession of energy
and fore-thought, and no inconsiderable share of information,
able to live on and effect small savings; and who, naturally
enough, would be glad to emigrate to a new country, where
their lot would be somewhat less arduous.   The object of a
parental government should be, not to get rid of the ignorant
and poor who, for that very reason, are not fit to become the
basis of a new colony, of which they would be in preponde-
rance of number, but to supply the younger country with
individuals possessing those qualities of intelligence and
moral character, which are even more required from them
abroad than at home.   Let this be done, and, the pressure
from above of over-population being removed, even the worst
class of those who remain, would speedily rise to the level,
and improve both in their nature and worldly condition.

71.—For this purpose, no legislative facilities have yet ever
been accorded, or even contemplated; and it is left to the
union of private enterprise and capital, to supply those means
for systematic emigration and colonization, which are daily
more and more felt to be required.   This is the object of a
Freehold Life Assurance Company and a system of Benefit
Emigration Societies, of which details are given further on.

By the aid of a company at home, the emigrant of the
superior class, we have alluded to, could obtain a loan from the
time of his emigration, of sufficient additional capital, to give
scope to his exertions and energy; and he would, probably,
in a few years, be able to repay the money with liberal
interest, suitable to the risk incurred by the lenders and the
advantage derived by himself.   The money would (as in the
former instances of the application of Freehold Assurance), be

lent upon the security of the land, with the deposit of a policy of insurance on the life of the emigrant; or it might be found expedient, in some instances, to take personal security.   We shall conclude this chapter by quoting some* remarks upon the subject, which are well worthy of a reprint, and refer to the succeeding chapter for the developement of a principle of Benefit Emigration Association, which may serve as the basis of an extensive application of the systems advocated by Mr. Bridges and Mr. Wakefield.

72.—"Say that the emigrant commences in his adopted land the cultivation of his little farm; at the end of the first year he reaps his crop and sells the produce, which is sufficient, we will imagine, for the support of himself and family, and also affords the means of raising another crop.   As, however, if a demand were made upon him for interest on the advance, he would, in all likelihood, be unable to answer it; no re-payment should be expected from him in that shape till the lapse of at least two years from the date of his entry.

"Let a case be supposed that may occur, viz., that in the course of a few years the emigrant dies, leaving a widow and one or two young children; It cannot be expected, in their circumstances, that the survivors will be able to meet a demand for the principal or interest of the debt; but by the operation of life assurance on a large number of transactions, the parties advancing the money would lose nothing; while the widow could retain her farm, the price, which was contracted for its purchase, having been paid during lifetime.   It matters not at what age a particular emigrant may die, as such a sum would be paid by each as would, one with another, make up the sum advanced with interest.

"The advantages of such a system to the emigrant hardly require to be pointed out; from a situation of penury and dependence in this country, he is removed to one of comfort

* Bridges on Freehold Assurance.

and respectability in the colonies.   While the rent-charge is
unredeemed, he is in the same situation with a farmer in this
country, having also the great additional advantage, that he
cannot be turned out of his farm so long as he pays that rent,
and that at whatever time he may die, he transmits to his
heirs a valuable inheritance, free from all future pecuniary
burden ; he may also redeem his land during his lifetime, by
paying up the sum due ; and, considering the rapid accumu-
lation of wealth in colonial countries in the hands of the
frugal and industrious, there is no delusion in supposing that
in the course of a few years the emigrant may raise himself
to the position of a free owner of an unburdened estate,
under his own cultivation.   The happy prospects thus opened
up to men struggling in this country with undue competition,
and unable, with all the aids of mechanical skill and industri-
ous perseverance, to earn a just reward for their exertions—
‘ a fair day's wages for a fair day's work’—it is unnecessary to
enlarge upon.

    “ On the other hand, the same system, with nothing more
than the preliminary advance of capital, might be carried on
to the same extent every year ; for it is obvious, that, so soon
as the third year of the emigrant's settlement had commenced,
the annual returns would immediately show, either that the
system was likely to do well or to prove a failure.   If the
rents were punctually paid on the average, capitalists would
have no hesitation in advancing money on such security, to be
applied in the same way.   It is in the outset of such a
scheme that all the risk lies.   When once fairly organized, it
acquires a self-supporting power, which insures success.   It
is obvious that the base upon which it rests, landed security,
is the most solid foundation of credit, when the land is culti-
vated and productive ; and that it must become so in a few
years, under the vigorous exertions of men working for
themselves, for their wives and families, who have so noble a
reward for their labours always before them, cannot be disputed.

73.—" It may be said that the scheme will possibly fail, because the emigrants, secure in the possession of their farms and houses, will refuse to pay the annual demands when due, trusting to their numbers and the weakness of government in a distant colony ; that, even though the government have the power, it would be unwise to exercise it ; from the general disorder into which the colony would be thrown by so many forcible ejections.   We must confess that we see no sufficient grounds for entertaining such fears. If we take the instance of Ireland, a country more unfavourable to the expectation of tenants performing their engagements to landlords, on many accounts, such as difference of religion, mutual exasperation, and too high rents, we* find that the payments, so far from being refused, are made as punctually as in England.   If proper care be exercised in ascertaining the habits and character of the emigrants, and in sending out only such as are recommended for sobriety and industry, there can be no great fear as to success ; if the executive were unable to enforce the law in the colonies, as well as at home, there would be an end to all government. This has not been the case hitherto, in any British colony, if we except the, now, United States ; but that arose from the attempt to impose an unjust and arbitrary taxation upon the colonies, and is altogether a dissimilar case. With regard to the danger of disturbing the country by an extensive series of ejectments, there is no reason to believe that any such resistance would be offered to a government both able and resolved to maintain the law against every offender. In the very unlikely event, therefore, of any such combination, a few examples would demonstrate to the refractory class the hopelessness of any such contest.

74.—" It is also to be considered that, at the utmost, the

* [This was written by Mr. Bridges in 1842, previous to those critical changes and misfortunes, which have since so pressed upon the ability of the renting farmers, that they have found it difficult to redeem obligations contracted under more favourable conditions.]

danger, if danger there be, would occur only with the first emigration, and during the first few years; and that such a class, scattered in the midst of a numerous and already settled colony, would be in no situation to combine their efforts for any purpose of opposition. In any such attempt, the moral force would be on the side of the government, and a power that enabled the United States to emancipate themselves from an unjust and arbitrary dominion, would certainly, when linked with the strength of government, be sufficient to maintain order, and enforce obedience to law. Once these few years of trial were passed, the danger would be for ever annihilated; and the system, incorporated with the institutions and habits of the colonists, would acquire the same degree of firm consistence as the relations of landlord and tenant in this country."

CHAPTER V.

ON THE FORMATION OF BENEFIT EMIGRATION AND COLONIZATION SOCIETIES.

ART. 75.—We will now consider the elements of the third principle alluded to at the beginning of the preceding Chapter.

It appears to us, that *Societies under the above title, might be formed for the purpose of carrying out, with the view to systematic colonization, the principle of Freehold Life Assurance, in union with that of the ordinary Benefit Building Societies. Of the advantages to be derived from a system of Freehold Assurance, enough has already been said. That it has not yet come into any very extensive operation can be attributed only to the difficulty which exists in creating the large capital requisite for the purpose. The capital of an ordinary joint stock company cannot, at all times, be collected with facility, as it has to be furnished by a comparatively small number of persons in instalments, within one or two years; and it is sunk for a length of time, generally equal to the duration of the company. Where the investment is permanent, or similar to that of railways or canals, the shareholder cannot recover his money, except by throwing his shares into the market, and exposing himself to sell them at a heavy loss. If the capital be only engaged for a time, the operations of the society would either be much limited or soon cease altogether. This would be more particularly the case with a Freehold Assurance Joint Stock Company for colonization, as the withdrawal of its capital would, at once, put a stop to any further progress. To obviate this difficulty,

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* [The recent Friendly Societies Act of August, 1850, 13 & 14 V. c. 115, contains an express provision, inserted at the eleventh hour, for the encouragement of Benefit Emigration Societies.]

we propose, that, in co-operation with such a central com-
pany to be possessed, intentionally, of but a small capital itself,
there should be adopted the system of the Investing share-
holders of a Benefit Building Society; or, in other words,
that the requisite funds should be created by small instalments,
payable by way of periodic subscriptions to Branch Benefit
Emigration and Colonization Societies, to be established in
all parts of the kingdom.

76.—The money subscribed by the investing shareholders
could be applied, through the agency of the central company,
to the wholesale purchase of land in a small number of se-
lected localities in the colonies, to be mortgaged in allotments
to such of the *branch members as desired to become
colonizing tenants.   The available means of each Benefit
Society would be continually increasing, by the taking up of
new shares by fresh investers, and by the repayments of
colonists, which, together, would come in so rapidly as to
regenerate continuously the lending fund.   Many persons
would join such a society for a limited period, as 10 or 12
years, either to obtain possession of small allotments of
colonial land, previously improved by sufficient preparation

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* [That admirable lady, Mrs. Chisholm, has tested, by experience, the
safety of according advances even to emigrants of the poorest class.   In a
notice relative to the benevolent Loan Colonization Society, which is under
her auspices, we find it recorded "that loans, made on a very extensive scale,
in aid of passage money, on the joint security of successive bodies of emi-
grants, have been, with inconsiderable exceptions, repaid with honourable
punctuality." The principle of that society is to help the poor man by enabling
him to help himself.   By careful and excellent arrangements its ships afford a
passage to an adult for only £12; to a child below 15 for £6.   Of this he is
required to pay down one-half; the society then lends him the remainder, and
has agents in Australia who secure repayment of this loan within 2 years after
his arrival.   Thus the poor man's own frugality and self-denial are called
into play, and the society makes them available for his emigration.   "Up-
wards of 200 poor people, who have been paying their little weekly in-
stalments for nearly 2 years, have now subscribed, in this way, £1,500,
which is more than their quota.   The loans, when repaid, go to equip another
ship, and then another; so that £10, in the course of time, may send out
many emigrants, saving them from probable starvation at home, and, at the
same time, bringing into action their own virtues of prudence and industry."]

thereon, in the nature of drainage, roads, &c., (which could be effected by the central company at a moderate cost in the gross, and yet, when subdivided, yielding to it a handsome profit,) or to receive at the end of that time, counted from the month of their entry, the amount of the subscribed shares in full, equivalent to the accumulation of their subscriptions, at a reasonable rate of compound interest, not lower than that of the public funds.

77.—The Central Company would thus act as the agent of numerous Benefit Societies. It would, in fact, be the super-association of separate groups of associating individuals, and would be able to perform, or cause to be effected, all that would be out of the power of one branch society. The company would be essential to them, and they would give vitality to it. Hence, undiminished power would be secured for carrying out, for ever, the object for which the colonizing company was originally formed; even though the membership in the local benefit society of each investing shareholder, on the one hand, and of a borrowing tenant, on the other, would be limited. The *surplus* profits of the central association would be periodically divided among the shareholders thereof, a portion being reserved to be carried to the credit of the shares of the branch societies, as an encouragement to persevere, and it might be made payable to the subscribers at the expiration of their membership. The profits to be divided would be materially increased by the power, which a *permanent* institution has of benefitting by that augmentation, in the value of the *reserved* lots of land, which would be consequent on the general improvements introduced on the property. Practically, the position of the tenants would be the same in either case, but by the aid of Branch Benefit Emigration Societies, that main difficulty would thus be removed, of obtaining the desired capital, which, in all enterprizes, has been found to consist in the natural unwillingness on the part of the public to sink, as proprietors of a Joint Stock Company, large sums at once, for an indefinite

number of years. By the plan proposed, the necessary funds would speedily be obtained, through the small contributions of the multitude of provident persons who exist in this country.

78.—We do not apprehend that there would be any obstacle to obtaining investers for the Benefit Emigration Societies, since the agency and protection of the Central Company would ensure to them as good, if not better, security, as in the ordinary mutual associations which swarm in such numbers, and of which the *pecuniary resources have attained to such large amounts.   The security offered, being *freehold* land, would increase every day in value from the improvements which the tenant farmer would introduce upon it ; and, from his repayments being made in gradual instalments, the risk of each branch association would be gradually   on the   decrease. Also, from its being a subscription society, the managers, at all times, would have the power of extending, curtailing, or putting an end to its operations.

79.—For unity of design and simplicity of working, the freehold mortgagors should have their lands, as much as possible, situate in the vicinity of each other, so that the collection of rents may be facilitated, and the expense of the same kept within a small limit. It is evident that such a combination would give rise to many settlements.   Half-a-dozen emigrants from each of 100 associations would at once constitute an important nucleus of 600 individuals co-operating together. The nature of such Benefit Emigration Societies is such as to

* [In recent statistical papers it is stated that there are 10,433 enrolled Friendly Societies, numbering 1,600,000 members, who subscribe an annual revenue of £2,800,000, and have accumulated a capital fund of £6,400,000. There are also a vast number of unenrolled societies.   Of the Manchester Unity there are also 4,000 societies, with 264,000 members, who subscribe £400,000 a year.   In addition, there are the unenrolled Foresters, Druids, Rechabites, Old Friends, and others.   The total is taken at 33,223 Societies, with 3,052,000 members, who subscribe £4,980,000 a year, and have a capital fund of £11,360,000.   The whole adult male population of Great Britain and Ireland was, at the last census, 6,300,000 ; therefore nearly half the adult male population, without distinction of rich and poor, are actually members of these societies.]

ensure their legal existence by the power reserved in the
clauses of the new Friendly Societies Act of 1850, and if
Life Assurance contingencies were also undertaken, that
department would be singularly benefited by the other pri-
vileges appertaining to that Act. The operations of the
central company and the branch benefit societies should
be kept perfectly distinct, both as regards the deed of the
one and the registered rules of the others. The only con-
nection between the two consisting in the protection, in-
fluence, and assistance which the centre would afford to
the branches; in the watchful attention to their rights,
both at home and abroad; in the securing for them all the
advantages that would accrue from the purchase and sale of
land, with other requisites, at wholesale prices; and in facili-
tating, by the power which an important company alone can
possess, the progress of the emigrant from his native country
to the spot of his selection, without the regrets and dis-
comfort that have, too often, been, hitherto, experienced by
those who have endeavoured, single handed, to better their
fortunes in another land.

80.—Moreover, the agreement of a number of benefit
emigration societies, to make use of the agency of one cen-
tral company for the furtherance of their objects, would
justify the expense, on the part of the latter institution, of
appointing *Labour Referees* in the leading towns of the
colonies, whose duty it would be to keep up constant com-
munications with the head quarters in England, upon the
state of the labour market in each seat of colonization, in
order to procure, not only information of the probable chances of
those emigrants who do not purchase land, obtaining employ-
ment, but even to secure it for them on their arrival; and, in
fact, to provide the benefit societies in the United Kingdom,
through the instrumentality of their centre, with periodic
authentic details, upon every colonial subject that is likely to
interest the members.

81.—Colonists of European extraction would probably associate themselves for the purpose of lending aid to their fellow countrymen, not to meet their pecuniary wants, but to furnish them with counsel and guidance, and, by information transmitted from time to time, to assist in preparing the emigrant with a knowledge of his prospects and difficulties on arriving at the colony of his selection.

82.—Of the constitution of the Company itself, it is not necessary for us to speak. The numbers of them, that have been lately formed, and the activity with which they are promoted, manifest sufficiently that, to the grand cause of systematic emigration, neither the support of the wealthy, nor the ability of men of business, is wanting. If they have not yet proved successful, it can be attributed only to a lack, on the part of the managers, of that special acquaintance with the habits and tone of mind of the industrious classes, which alone could enable them to secure their confidence. Such deficiency will, however, soon be remedied.

83.—The rules of all the Branch Societies might be similar in their leading details, which may be shortly resumed thus:—They should be formed on a principle analogous to that of a Benefit Building Society; the only real difference being in the purposes to which the funds of the society are to be applied ; instead of advancing the money towards the purchase of houses or land in England, the object would be to gratify the desire of emigration. Intending emigrants would join a Benefit Society as investers, and perform the conditions attached to that position ; after they have acquired sufficient standing by rotation or by ballot they would become eligible to be sent out as colonists; that is to say, land and other requisites would be supplied to them at a price, either to be paid for at once or by gradual instalments.

84.—The following extracts from a set of rules that we have prepared, as suitable for the object under consideration, will serve to illustrate the principle ;—viz. :—

" BENEFIT EMIGRATION AND COLONIZATION SOCIETY.

£50 Shares. Weekly payments,   per share. Entrance Fee
2s. 6d. per £50 Share. Half-shares of £25 may also be taken·

I. *Name and Object of the Society.*

THAT this society shall be called the ————— ————— —— ————
Benefit Emigration and Colonization Society. Its object is to raise a
fund to enable its members to emigrate, and, if they desire it, to
receive an advance in full, or in part, of a share or shares, for the
purpose of purchasing land and other requisites in any part of the
Colonies dependent on Great Britain (or of the United States of
America), on a system of purchase, as is hereinafter laid down ; also
to enable provident persons, who may have no immediate desire of
emigrating, to invest their savings, at interest, in subscriptions upon
shares to be received in full, out of the funds of the society when
realized.

II. *Time and Place of Meeting.—See Rule 2, Page 95.*

III. *Power of Investment.*

That the Directors of this Benefit Emigration and Co'onizatio
Society shall have power to invest the whole or part of the sub-
scriptions collected, from time to time, from the members, either in
public securities or to deposit the same on the security of debentures
bearing interest, not lower than —— per cent., to be given by the
—— Emigration Company of London. The said debentures to be
undertakings on the part of the said —— Emigration Company, that
it shall be liable for all monies so invested, until the same be either
repaid, with the above rate of interest, or be accounted for, pursuant
to agreement, in land and other colonial requisites, provided for such
members of this Benefit Society, as may become emigrants, on such
terms as the boards of directors of the ——— Emigration Company
of London, and of this Benefit Emigration Society, may severally
and jointly agree.

IV. *Share Subscriptions.*

That the shares shall be of the ultimate value of £50 each, to be
paid to each member, at his option, in money, or in general requisites
for emigration, in allotments of land, &c. &c.

CLASS 1.

Entrance Fee 2s. 6d. Subscriptions ———— per week until the said subscriptions, with a proportionate part of the profits of the society (to be estimated yearly), shall amount to £50. Withdrawals will be allowed on giving ——— weeks' notice, according to the terms of Table 1, rule ——, further on.

CLASS 2.
Endowment Shares.

Entrance Fee ——— Weekly subscription, varying with the age, according to Table 2., to amount, with a share of the profits, to £50, on the child attaining the age of 18 or 20. The whole of the amount paid in to be returned with interest, at —— per cent., to the parent, in the event of the previous death of the child, or in case of his desiring to withdraw, by giving ——— weeks' notice.

TABLE 2.

CLASS 3.
Tontine Shares.

Entrance Fee ——— Weekly subscriptions, 1s. The aggregate of each year's subscriptions shall be collected into classes, according to the then age of the nominee, and credited with compound interest. At a specified age, 18 or 20,* the accumulated results of each year's class shall be divided among survivors of that class.

That no *new* nominees be admitted exceeding the age of 11 years. That the interest, yearly allotted to each class, from the proceeds of the society's investments, be proportionate to the already accumulated amount of money in that class. There shall be, in all, 11

[* Tables 13 and 14 are interesting, as shewing the number of infants under 1 year of age, who survive to 18 or 20. If 1000 infants of both sexes were enrolled in a Tontine, and £100 staked upon each of them, the survivors at 20, supposing the money to have been, meanwhile, invested at 5 per cent. compound interest, and their number to be 660, would receive a part of £265,320, or £402 each for the £100 originally invested. This remarkable increase in the value of money, contingent upon lives, may, evidently, be adapted with advantage.—*See also Chapter* 2, *Part* 2, *on the Tontine principle.*]

classes. Into any class, the nominees in which have attained to a given age, new nominees of the same age may be admitted, on paying afterwards a proportionate rate of subscription. The payments shall cease in case of the death of a nominee or nominees, and the past subscriptions become forfeit to the society. A subscriber may purchase the right to two nominations, for which the weekly payment, somewhat more than for one, shall be estimated by an Actuary, so that, in the event of the death of one nominee, he may nominate a second, out of his own family, or by the sale of his nomination right to some other person. The new nominee partaking of all the privileges of the first.

Single deposits will be received in composition of future weekly payments.

TABLE 3.

Age next birthday.	Week's payment for a	
	Single Nomination.	Double Nomination.
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		

Half-shares may also be issued on payment of an entrance fee of 1s. 6d., and half the weekly subscriptions for whole shares. An allowance, to be fixed, from time to time, by the consulting actuary, will be made on all subscriptions paid in advance, for a period of not less than twelve months.

V. *Advances and Repayments.*

That sums of money, from £25 upwards, may be advanced to those members, who have paid, at least, one year's subscriptions, according to the scale of repayments in Table 4, with such security as the directors shall consider adequate and sufficient.

TABLE 4.

Provided, that a certificate be obtained (in the case of money being advanced to a member who has purchased therewith land, through the —— Emigration Company of London), that the land, so purchased, is adequate security for the same. That the sum for which security by a mortgage on the allotment of land shall be taken, shall be the difference between the amount of money advanced and the total of the net subscriptions paid up by the borrowing member. Provided, that such net subscriptions be first charged, with all necessary declarations for arrears of fines, fees, &c., and with a proportion of the past expenses and losses (if any), of the society; provided also, that, towards the liquidations of his repayments, the borrower be credited with his proportion (if any), of the profits of the society, that may have been realized, in the opinion of the consulting actuary, previous to the time of his (the borrower) obtaining an advance. That, in no case, shall the amount of money advanced exceed two-thirds of the cost of the land which the borrower purchases.

That, in consideration of the aforesaid repayments so agreed, borrowing members shall not be called upon to contribute any other sums after the date of their advances, towards expenses or contingencies, excepting such fines, transfer or other fees, as may be hereafter mentioned in these rules.

That, any member for whom an allotment of land shall have been procured, shall, within a period previously agreed upon, be ready to proceed to the place where it is situated, and to occupy the same, subject to the forfeit of a sum not exceeding one half of his paid-up subscriptions, unless the board of directors of the ————— Emigration Company of London shall give an extension of time, or unless he succeed in procuring another member to go out in his place, in which case a transfer fee of —— shillings shall be paid by him to the general fund of this benefit society.

That the expenses of legal enquiry into the purchase of the property, and of the survey, shall be borne by this benefit society from its general funds.

That the repayments, in case of advances made upon lands in the colonies (to a value exceeding the net amount of a member's subscriptions), shall be made at the end of the first year, next following the arrival of the emigrant to the seat of his allotment, and shall continue, after that, to be made for the full period for which the advance may have been originally taken, unless the mortgage be previously redeemed; and that, in all cases, such repayments shall be due on the 1st days of January, April, July, and October in each year, and be respectively made thereon.

That the directors of this society shall have power to make arrangements with the ——————— Emigration Company, that all Rents, and other payments due to this society, may be duly collected and received on its behalf, by the instrumentality of the ——————— Emigration Company, at such remuneration, by commission or otherwise, as may be found advisable.

That this society shall receive deposits of any sum not less than £5, allowing interest at a rate not exceeding — per cent., payable yearly.

VI. *Security for Advances.*

[This, and additional rules, will be required, similar to those in the draft set of rules for a permanent benefit building society. *(See page 94).* The mortgage and conveyance deeds must be settled according to the laws of the colony or state where the land is situated.] ”

85.—*The directors of the central company, by means of a debenture or otherwise, can give an undertaking that the company shall be liable to the branch society, either for a return of the money received, with interest, or to provide its equivalent in kind, that is, in the shape of land, buildings thereon, or other requisites.

86.—The funds of either company or society should, in the event of more money being subscribed than there is re-

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* [It may be thought, with some justice, that the place of such a central company should be taken by a parental government, as having all the means and appliances ready at hand to carry out the desired object. In our opinion, however, an ordinary joint stock company, with sufficient privileges and powers obtained from parliament, suitable to the vast national importance of its operations, would find its advantage in undertaking the business, as a simple commercial speculation, where the profits would be large, and the risk inconsiderable.]

quired for immediate use, be at once invested in government or other good securities, so that they may be always realizing, at least, a moderate rate of interest.

87.—In the above it is seen, that the investers who become emigrants will either complete at once the purchase of the land,* at wholesale price, through the central company, with their own money, when they have saved enough for the purpose ; or the benefit society will grant them an advance to complete the purchase of the land and colonial requisites, provided the emigrant can himself pay down a portion (say one third), of the total cost thereof. The remainder being secured by a bond for a short period of years, or, perhaps, in select instances, for life, with the aid of a †policy of assurance.

* [The following is a summary of the modes of sale and prices in the principal land-selling colonies on the present system of land-sales and emigration.

COLONY.	Mode of Sale.	Price per Acre.
North American Colonies—		
Canada (West) ..	Fixed Price	8s. currency.
Canada (East) ...	Ditto	6s. & 4s. ditto, according to situation.
Nova Scotia	Ditto	1s. 9d. sterling.
New Brunswick .	Auction	3s. currency upset price.
Prince Edward Is.	Ditto	5s. or upwards, according to situation.
Australian Colonies—		
Sydney	By Auction.	
Port Phillip	Country Lands not sold at the public sales may afterwards be bought at the upset price as a fixed price.	Lowest upset price, £1 sterling.
Western Australia.		
South Australia..		
New Zealand		
Falklands	Auction, ditto, ditto.	Lowest upset price, 8s. sterling.
Bahamas	Auction, ditto, ditto	Ditto 6s.
Other West India Colonies.	Auction	Ditto £1.
Cape of Good Hope	Ditto	Ditto 2s.
Natal	Ditto	Ditto 4s.
Ceylon	Ditto	Ditto £1.
Hong Kong	Do. only leases granted	Rent to be ascertained by auction.

The system of sale, whether that adopted by the Government of selling waste lands at an upset price, or that of the New Zealand and other Companies, of selling the land, including prospective institutions, at a uniform and greatly enhanced figure, is obviously susceptible of immense improvement.]

† [The allusion in Article 41 to the possible aberrations in the law of mortality, upon which, as a basis, the assurance of colonists would be graduated

88.—The debt would be cleared off by periodic instalments, calculated to bring in an advantageous interest to the company. It is clear, that if a benefit building society can realize a handsome accumulation on its funds, by enabling some of its members to purchase property, there is no reason why land should not be bought abroad by emigrants. Through the credit afforded to an emigrant member being, in general, not more than two-thirds of the marketable value of the property, although with the money which he has already paid in as an invester it would be sufficient for his purpose, the benefit society, at once, will secure a salvage ; inasmuch, as if the colonist should, at any time, even after the first year, neglect his repayments, the margin of the value of the property will prevent any loss. The society would also serve as a kind of Savings' bank for provident people and intending emigrants; whilst the endowment and tontine classes would prove a great convenience to parents and relations, who may desire, at some future day, to send out a son or brother, and are willing to begin subscriptions on his account, at an early age, on the scales of those classes.

89.—For greater security to the branch society, we recommend that one or two of the directors, or some efficient person on their behalf, should (ex officio), be entitled to be present, and to vote at the general meetings of the central company.

90.—Any hesitation, relative to the security of their subscriptions, that might exist in the minds of those members of

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by the emigration company, brings us to the question of how far a properly adjusted system of extra premiums might provide against such contingencies as those referred to, or against the increase of mortality which might be consequent upon a change of climate, or upon the absence of that sound medical advice and other resources for ill health and accidents which are so accessible in Europe. Our own impression is, that the change of occupation and scene, and the feelings of content, which prosperity in the new country would bring, are likely to counterbalance the effect of all other contingencies. Hence, the application of the principle of extra premiums, to be strictly equitable, should be effected on the mutual system of assurance ; so that, in the event of this latter view proving correct, the colonists may have returned to them, by way of bonus in cash or colonial requisites, that portion of the extra rate which was charged in excess. A *mutual* system of extra premiums would be all the more advisable, in the case of an extensive amount of colonial business, as the present rates charged by most of the European offices are entirely empirical, and have no real relation to any law of colonial mortality.]

the benefit emigration societies, who do not contemplate emi-
grating, would at once be removed if the central colonization
or emigration company were to undertake the granting of
guarantee assurance policies, against the risk of loss upon
advances to colonists. For a very small premium upon each
transaction, paid by the benefit society to the company, and
previously charged to the colonist, the latter institution might
safely undertake to guarantee, collaterally with the mortgage
upon the property, the benefit society from loss, in case of a
colonist becoming, intentionally or involuntarily, a defaulter.
The losses, that occur in extensive loan transactions, are
within an average limit, which can be determined with suffici-
ent approximation; and a scale of premiums for loan con-
tingencies may safely be adopted; reference being made to the
contingency theorem, in Section 4 of the Appendix.

91.—*Such a system of Loan-repayment guarantee would
fall within the range of most legitimate business for which a
company might even specially be formed, and the rates of pre-
miums would be trifling. The guarantee, being protected by
the collateral mortgage upon the colonist's land and property,
would be in this advantageous position, that every succeeding
year would see the intrinsic value of the mortgaged security
increasing from the improvements effected by the colonist
upon the land, and from the influx of emigrants into the
neighbourhood; whilst the out-standing amount of the debt,
yet to be repaid, would be regularly diminishing.

* [The Loan Guarantee System, above suggested, is widely different, in its
operation, from the recent plan denominated *Rent Guarantee*, which is in-
tended to assure landlords against defaulting tenants. For it is plain, that in
the rent guarantee, the society has no tangible security upon which to recover
its payments to a landlord in case of a tenant taking his departure from a
house without settling his rent ; hence the premiums must be heavy. If, how-
ever, the rent assuring society undertake to make proper enquiries into the
responsibility of the tenants, relatively to whom policies of guarantee are to be
granted; and, if the rates be sufficiently high, such a company might do a safe
and profitable business, and be of great public advantage.]

APPENDIX.

The following pages contain the elementary propositions of Compound Interest, which relate more particularly to the system of Benefit Building, and other Investment, Societies, together with* several theorems, which have been specially deduced as bearing upon the subject. *In Section 4 will be found articles referring to financial clauses in the* Rules *or* Deeds *of* Industrial Associations, *and suggestions for the application of a* Deposit System *of Subscriptions, and of* Life Assurance, *to the extension of their operations.*

SECTION I.

ON THE ACCUMULATION OF A SINGLE SUM AT COMPOUND INTEREST.

Art. 1.—To find the amount S to which a sum P will accumulate in n years at compound *yearly* interest i per pound.

Since i is the interest on £1 for one year, or

$P . i$ „ „ £P for the same time.

∴ The amount of P with interest in one year is $P . (1 + i)$.

Again the amount of P with interest in *two* years will, of course, be equal to its amount, at the end of *one* year, re-invested for a second year; or, to the amount of $P (1 + i)$ with interest in one year; that is, it will be equal to

$$\overline{P . (1 + i)} + i . \overline{P . (1 + i)}$$
$$= P . (1 + i)^2$$

Similarly the amount of P with interest in three years is

$$= P . (1 + i)^3$$

and so on for n years, where n is any *integer*,

$$\therefore S = P . (1 + i)^{n} \dots\dots\dots\dots\dots\dots (1)$$

In the above the time is expressed in years, but, from the nature of the reasoning, equation (1) will represent the amount

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* [The theorems and articles marked thus † have a special relation to each other.]

of P at the end of an *integral* number of any intervals of time, at the end of each of which interest is due after the rate of i per pound.

It is, however, not applicable when n is a fractional number of the form $n = n_1 + \dfrac{a}{b}$, where n_1 is an integer and $\dfrac{a}{b}$ a fraction of a year, as the interest was supposed only due at the *end* of successive equal intervals of time, and, theoretically speaking, no allowance of interest can be made for the broken portion $\dfrac{a}{b}$, consequently, this hypothesis must always be remembered, and if results be deduced from equation (1) relative to n, n must always prove to be a whole number (see Art. 12). In commercial questions, nevertheless, it is usual in such cases to calculate by equation (1) the amount due at the expiration of the last full period, and to add to it simple interest for the fractional remainder of the time; so that

The amount of P in $\left(n_1 + \dfrac{a}{b} \right)$ years

$\qquad$ = amount of P in n_1 years + simple interest on that amount for the portion $\dfrac{a}{b}$ of a year.

$$= P \cdot (1 + i)^{n_1} + \frac{a\,i}{b} \times P\,(1 + i)^{n_1}$$

$$= P \cdot (1 + i)^{n_1} \cdot \left(1 + \frac{a\,i}{b} \right) \dots \dots \dots \dots (2).$$

2. — If the interest be due, in equal instalments $\dfrac{i}{m}$, at the end of each interval of time equal to the mth part of a year, the amount at the end of $m\,n$ intervals will be

$$S = P \cdot \left(1 + \frac{i}{m} \right)^{m \cdot n} \dots \dots \dots (3).$$

This result can be adapted to the case of interest being paid, or due, half-yearly, quarterly, or monthly, by making $m = 2, 4$, or 12 respectively.

3.—If the interest be supposed due momentaneously, or at the end of each moment of time, in equal portions $\dfrac{i}{m}$, m being indefinitely large, then the result in equation (3) assumes a peculiar form.

For, expanding by the Binomial Theorem,

$$S = P\left\{1 + \frac{m \cdot n}{1} \cdot \frac{i}{m} + \frac{m \cdot n \cdot (m \cdot n - 1)}{1 \cdot 2} \cdot \frac{i^2}{m^2} + \ldots \&c.\right\}$$

$$= P\left\{1 + \frac{n \cdot i}{1} + \frac{n \cdot i \cdot \left(n \cdot i - \dfrac{i}{m}\right)}{1 \cdot 2} + \&c.\right\}$$

$$= P\left\{1 + \frac{n \cdot i}{1} + \frac{(n \cdot i)^2}{1 \cdot 2} + \ldots\ldots\right\}, \text{ since the terms con-}$$

taining $\dfrac{i}{m}, \dfrac{i^2}{m^2}$, vanish when m is indefinitely large.

$$\therefore\ S = P\,e^{ni} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (4).$$

e being the base of the Napierian or Hyperbolic logarithms, and $= 2\cdot71828$ nearly. (See any Treatise on Algebra.)

To this equation we will return further on.

4.—Since $(1 + i)^n$ can be put under the form $(1 + i)^{n_1} \cdot (1 + i)^{n_2}$ where $n_1 + n_2 = n$, we have *Theorem* 1:—That the *amount* of £1 at the end of n years by the accumulation of Compound Interest is equal to the products of its *amounts* at the end of n_1 and n_2 years respectively.

This property serves to make Table 3 give results, which are not contained within its limits.

EXAMPLE.

Let $n = 30$

The last number in the table is 25, let $n_1 = 25$, then $n_2 = 5$

And the *amount* at the end of n years $= £3.3863 \times £1.2762$

at 5 per cent. $= £4.3216$.

Similarly, if $n = n_1 + n_2 + \ldots\ldots\ldots\ldots + n_r$

$$(1 + i)^n = (1 + i)^{n_1} (1 + i)^{n_2} \ldots (1 + i)^{n_r}$$

5.—From the preceding expressions it is seen that :

> *When interest is payable more frequently than once a year, there is a difference between the* nominal *annual rate of interest, and the* true *rate or* actual annual interest *realised.*

For if $i =$ the *nominal* yearly rate of interest per pound, and it be payable in m periodic equal portions $\dfrac{i}{m}$ in the course of a year, then supposing each instalment to be invested and to bear interest after the same nominal rate,

The *true* rate = the amount of £1 at the end of *one* year — £1.

$$= \left(1 + \frac{i}{m} \right)^{m} - 1 \ldots \ldots \ldots \ldots (5).$$

If the interest be realised momentaneously, then

The *true* rate of interest becomes $= e^{i} - 1 \ldots (6).$

Hence a table may be formed showing the *true* rate per pound for various values of m.

If $m = 2$, the true rate for interest paid *half-yearly*

$$= \left(1 + \frac{i}{2} \right)^{2} - 1 = i + \frac{i^{2}}{4}$$

$m = 4$, the true rate for interest paid *quarterly*,

$$= \left(1 + \frac{i}{4} \right)^{4} - 1 = i + \frac{3}{8} i^{2} + \frac{i^{3}}{16} \text{ nearly.}$$

$m = 12$, the true rate for interest paid *monthly*,

$$= \left(1 + \frac{i}{12} \right)^{12} - 1 = i + \frac{11}{24} i^{2} + \frac{55}{432} . i^{3} \text{ nearly.}$$

$m = 52$, the true rate for interest paid *weekly*,

$$= \left(1 + \frac{i}{52} \right)^{52} - 1 = i + \frac{51}{104} . i^{2} + \frac{425}{2704} i^{3} \text{ nearly.}$$

$m = \infty$, the true rate for *momentaneous* interest,

$$= e^{i} - 1 = i + \frac{i^{2}}{2} + \frac{i^{3}}{6} \text{ nearly.}$$

The two last results shew that the weekly and momentaneous rates of interest differ but little.

Table 4 has been formed by giving, in the above, to i different values for successive rates of interest, and it is accurate to three places of decimals.

6.—In equation (6) let $k = e^i - 1$.

Taking Hyperbolic logarithms,

$$i = \text{Log}_e (1 + k) \dots\dots\dots\dots\dots\dots (7).$$

and this equation gives the nominal annual rate of interest i, realised momentaneously, which corresponds to a *yearly* rate of interest k.   Example: Let $k = \dfrac{5}{100}$

$$\therefore \; i = \text{Log}_e (1 \cdot 05) = .04879$$

or £4.879 per cent. per annum momentaneous interest is equivalent to 5 per cent. per annum paid yearly.   (See Table 5.)

7.—The general result in equation (1) can be put under the form

$$S = P \left(1 + \frac{(m \cdot i)}{m} \right)^{m \cdot \frac{n}{m}}$$

Hence, *Theorem* 2:—*The amount at the end of n years, arising from the accumulation of interest* yearly *at the* nominal *rate of i per pound, is equal to the amount at the end of* $\left(\dfrac{n}{m} \right)$ *years, arising from the accumulation of interest m times a year at the* nominal *rate* $(m \cdot i)$ *per pound:*

Or, in other words, †*Theorem* 3:—

The amount of a given sum, at the end of any number of periods of time, does not depend on the *length* of time in each period, but only on the *number* of them, and the quantity of interest due or payable at the end of each.

Example: Let $m = 2$.

$$\therefore\ \mathrm{P}\ (1 + i)^n = \mathrm{P}\left(1 + \frac{(2\,i)}{2}\right)^{2\left(\frac{n}{2}\right)}$$

or the amount of P in n years at i per pound *nominal* rate of interest payable once a year, is equal to the amount obtained at the end of $\frac{n}{2}$ years at $2\,i$ per pound rate of interest payable half-yearly.

Referring to Table 6, if $n = 50$, and $i = .04$ payable *yearly*, the amount of £1 in 50 years is 7·10668, which is the amount that would be realised in 25 years at 8 per cent. rate of interest payable *half*-yearly.

8.—If the *amount* A of a sum P at the end of n years be given by the tables at *yearly* interest, the amount A_1 can be deduced when interest is payable m times a year.

$$\text{For } A_1 = \mathrm{P}\left\{1 + \frac{i}{m}\right\}^{m\,.\,n} = \mathrm{P}\left(1 + i\right)^n \left\{\frac{\left(1 + \frac{i}{m}\right)^m}{1 + i}\right\}^n$$

$$= \mathrm{A}\left\{\frac{1 + m\,.\,\dfrac{i}{m} + \dfrac{m\,(m-1)}{1\,.\,2}\,.\,\dfrac{i^2}{m^2} + \&\text{c.}}{1 + i}\right\}^n$$

$$= \mathrm{A}\left\{\frac{1 + i + \dfrac{1\,.\left(1 - \dfrac{1}{m}\right)}{1\,.\,2}\,.\,i^2 + \&\text{c.}}{1 + i}\right\}^n$$

$$= \mathrm{A}\left\{1 + \frac{\left(1 - \dfrac{1}{m}\right)}{1\,.\,2}\,.\,i^2 + \&\text{c.}\right\}^n \quad \text{nearly, and}$$

neglecting the higher powers of i, which, as i is a decimal fraction of the order $\frac{1}{10^2}$, may be done when n is not very large, we have

$$A_1 = \mathrm{A}\left\{1 + \frac{n\left(1 - \dfrac{1}{m}\right)}{1\,.\,2}\,.\,i^2\right\} \text{ nearly } \ldots\ldots\ldots\ (1).$$

9.—Remark. The preceding equations contain all the formulæ necessary for the determination of any question connected with the accumulation of a *single* sum from compound interest. Several results can be deduced from them, which are worthy of notice.

It is seen that the hypothesis of momentaneous interest considered in equation 4 introduces the base of the Napierian or Hyperbolic logarithms, which possesses many important properties. Although that hypothesis is not generally used, yet it gives rise to various theorems, which can be adapted with sufficient exactness to the actual conditions of practice.

10.—Equation (4) gives $S = Pe^{ni}$, ∴ taking logarithms and denoting as before by Log_e the logarithm to the base e, we have

$$n \cdot i \quad = \quad \mathrm{Log}_e\left(\frac{S}{P}\right)\ldots\ldots\ldots (1).$$

$$= \text{ a constant}:$$

or, supposing interest realised momentaneously, † *Theorem* 4 arises:—*The product of the nominal yearly rate by the number of years, in which a sum* P *will amount to* S, *is constant, or the same whatever be the rate of interest*: in other words, *If* P *amount to* S *in* N_1 *years at* i_1 *per pound interest, then* P *would amount to* S *in* $\frac{N_1 \cdot i_1}{i_2}$ *years at* i_2 *rate of interest, or in* q.N *years at* $\frac{i}{q}$ *rate of interest.*

Example: By Table 6, £1 will amount to £7·38906 in 50 years at 4 per cent. momentaneous rate of interest. Hence, £1 ought, by this theorem, to amount to the same sum in $\frac{50 \times \cdot04}{\cdot08}$ years, or 25 years, at 8 per cent. momentaneous rate; which is also shewn by Table 6 to be the case.

11.—Let $S = f \cdot P$ in equation (1) $\therefore n_f \cdot i = \mathrm{Log}_e f$

$$\therefore n_f = \frac{\mathrm{Log}_e f}{i} \dots\dots\dots\dots(2).$$

or, †*Theorem* 5 :—*The number of years, in which, by the accumulation of momentaneous interest, a sum will become f-fold its original value, is equal to the Log$_e$ f divided by the nominal yearly rate per pound.*

$$\text{If } f = 2, \qquad n_2 = \frac{\mathrm{Log}_e 2}{i}$$

$$= \frac{.693147}{i} \dots\dots\dots\dots(3).$$

See the extract from Tables of Hyperbolic Logarithms contained in Table 12.

$$\text{If } f = 3, \qquad n_3 = \frac{\mathrm{Log}_e 3}{i}$$

$$= \frac{1.098612}{i} \dots\dots\dots\dots(4).$$

And so on for other values of f.

If for i we put $\dfrac{1}{100}$, I being the interest per cent., we have,

from eq^n 3. *The number of years in which money will become doubled at* I *per cent. rate of interest realised momentaneously is equal to* 69·3147, *divided by the rate of interest* I.

from eq^n 4. *The number of years in which money will become trebled is equal to* 109·8612, *divided by the rate of interest.*

12.—*Respecting the Time of doubling at yearly interest.*

If in Equation (1), Art. 1, or $S = P (1 + i)^n$ $\dots\dots\dots$ (1) we suppose $S = 2 P$, then $2 = (1 + i)^n$ $\dots\dots\dots\dots$ (2) which shews that n cannot be an integer, as $1 + i$ is a fraction.

But, as we have stated before, Art. 1, equation (1) can only be applied when n is an integer, hence it will not serve to determine the time of doubling when interest is paid *yearly*; nor can any equation do so, as, theoretically speaking, there can be no time of doubling for interest expressed by a commensurable fraction, and paid at the *end* of finite intervals.

Most writers have overlooked this consideration, and have erroneously given the values of n deduced from $n = \dfrac{\mathrm{Log_e} 2}{\mathrm{Log_e}(1+i)}$ for various values of i, as being the corresponding times of doubling at yearly interest (see Table 7). This amounts to supposing the money to accumulate *continuously* by a compound momentaneous interest $\mathrm{Log_e}(1+i)$ throughout the whole time, in which on such an hypothesis it would double, instead of increasing as it does per saltum at the *end* of each year; or that the expressions $(1+i)^n = 2$ and $e^{n\,\mathrm{Log_e}(1+i)} = 2$, which represent different hypotheses, are interchangeable.

The results thus obtained are of no mathematical value, although they differ but little from those that might be deduced from the *commercial* view of the question, see Equation (2), Art. 1, which supposes a proportionate amount of the *yearly* rate of interest to be paid, when there is a fractional number of days over.

13.—When interest is payable m times a year, Equation (3) Art. 2 gives $S = P\left(1 + \dfrac{i}{m}\right)^{m\,n}$, where $m \cdot n$ is an integer.

$$\therefore \mathrm{Log_e}\frac{S}{P} = m \cdot n \cdot \mathrm{Log_e}\left(1 + \frac{i}{m}\right)$$

Let $S = f \cdot P$

then we may still assume the equation to hold approximately, whether $m \cdot n$ remain an integer or not, provided the intervals of conversion of interest be frequent.

$$\therefore \quad m \cdot n_f = \frac{\mathrm{Log_e} f}{\mathrm{Log_e}\left(1 + \dfrac{i}{m}\right)} \dots\dots\dots\dots(1).$$

$$= * \operatorname{Log}_e f \cdot \left\{ \frac{1}{\left(\dfrac{i}{m}\right)} + \frac{1}{2} - \frac{i}{12\,m} + \frac{i^2}{24\,m^2} - \&c. \right\}$$

And when f is not very large we have with sufficient approximation, †*Theorem* 6:—The number of finite intervals of time (each equal to the mth part of a year), at the end of which money will accumulate to f-fold its original value, is

$$= \frac{\operatorname{Log}_e f}{\left(\dfrac{i}{m}\right)} + \frac{\operatorname{Log}_e f}{2}$$

$$= \frac{\operatorname{Log}_e f}{\text{rate of interest per pound in each interval}} + \frac{\operatorname{Log}_e f}{2} \text{ nearly} \ldots (2)$$

since i is a decimal of the 2d order, and the higher powers of $\dfrac{i}{m}$ may be neglected.

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* [The reciprocal of $\operatorname{Log}_e (1 + x)$ can in general be expanded in a series by the following method:—

$$\text{Let } \frac{x}{\operatorname{Log}_e (1 + x)} = a_o + a_1\, x + a_2\, x^2 + \cdots\cdots + a_r\, x^r + \&c.$$

$$\therefore \quad x = \left\{ a_o + a_1\, x + a_2\, x^2 + \cdots \right\} \operatorname{Log}_e (1 + x)$$

$$= \left\{ a_o + a_1 \cdot x + a_2\, x^2 + \cdots \right\} \left\{ x - \frac{x^2}{2} + \frac{x^3}{3} - \&c. \right\}$$

$$= a_o\, x + a_1 \left| x^2 + a_2 \right| x^3 + \cdots + a_r \left| x^{r+1} + \&c. \right.$$
$$\qquad - \frac{a_o}{2} \left| \quad - \frac{a_1}{2} \right| \qquad - \frac{a_{r-1}}{2} \left|$$
$$\qquad\qquad + \frac{a_o}{3} \left| \qquad + \frac{a_{r-2}}{3} \right.$$
$$\qquad\qquad\qquad\qquad + \cdots\cdots$$
$$\qquad\qquad\qquad\qquad + \frac{(-1)^r \cdot a_o}{r+1}$$

$$\text{Whence } \quad a_o = 1, \ a_1 = \frac{1}{2}, \ a_2 = \frac{1}{4} - \frac{1}{3}$$

$$= \frac{-1}{12}$$

$$a_3 = \frac{1}{24}, \ a_4 = \frac{-19}{720} \text{ and generally } a_r \text{ is given by the equation}$$

$$a_r - \frac{a_{r-1}}{2} + \frac{a_{r-2}}{3} - \cdots\cdots + \frac{(-1)^r}{r+1} = 0 \ldots (1)$$

$$\therefore \frac{x}{\operatorname{Log}_e (1 + x)} = 1 + \frac{x}{2} - \frac{x^2}{12} + \frac{x^3}{24} - \frac{19\, x^4}{720} + \&c.$$

14.—Let $f = 2$ then $\mathrm{Log}_e\, 2 = \cdot 693147$

∴ The number of intervals of time (equal to m^{th} part of a year) at the end of which money will double $= \dfrac{\cdot 693147 + \cdot 3465}{\left(\dfrac{i}{m} \right)}$

$= \underbrace{69 \cdot 3147 + \cdot 3465}_{\text{rate of interest per cent. in each interval.}}$ nearly..(3)

15.—The results in Table 7, and Equation 3, shew that, generally, as regards the *integral* part of the time of doubling, we may assume for the sake of memory, †*Theorem* 7, that the

$$\text{Time of doubling} = \frac{70}{\underset{\text{rate of interest per cent.}}{}}\text{nearly,}$$

70 being the whole number next above $69 \cdot 3147$.

Or, " *The number of years in which money will double itself at compound interest is, in round numbers, equal to that whole number, which is nearest to the quotient obtained on dividing* 70 *by the rate of interest per cent.*"

When i is greater than $.10$, a higher dividend than 70 must be taken. In the generality of commercial operations, however, interest does not exceed 10 per cent., and this approximate rule will suffice for all practical purposes.

Whence $\dfrac{1}{\mathrm{Log}_e\,(1 + x)} = \dfrac{1}{x} + \dfrac{1}{2} - \dfrac{x}{12} + \dfrac{x^2}{24} - \dfrac{19\,x^3}{720} + \&c...(2).$

When x is a fraction, as in the case of $x = i$ rate of interest per pound, then the series converges rapidly.

Also if for x we put $\dfrac{1}{y}$

$$\dfrac{1}{\mathrm{Log}_e\left(1 + \dfrac{1}{y}\right)} = y + \dfrac{1}{2} - \dfrac{1}{12\,y} + \dfrac{1}{24\,y^2} - \dfrac{19}{720\,y^3} + \&c..(3).$$

this form we shall make use of afterwards.

It will be noticed, by such of our readers as may be familiar with the higher branches of analysis, that the coefficient a_r, as determined from equation (1), is equal to the value of the definite integral

$$\int_0^1 (-1)^{r-1}\, \frac{z\,(1 - z)\,(2 - z)\ldots\ldots(r - 1 - z)\,dz}{1\,.\,2\,.\,3\ldots\ldots r}$$

where z is integrated between the limits $z = o$ and $z = 1$.]

16.—In simple interest there is a corresponding property. If N = number of years in which a sum P will double itself at simple interest I per cent.

$$P \quad + \quad N. \; \frac{I.P}{100} \; = \; 2\,P$$

$$\therefore \qquad N.I \qquad = \; 100$$

$$\therefore \quad N \qquad = \; \frac{100}{I}.$$

17.—*On the successive Stages of Accumulation of Capital.*

In Art. 13 we have deduced eq^{n} (2) a simple expression for the value of n_f, or the aggregate number of years that are required to make a single capital become f-fold its original magnitude; and Art. 15 affords an easy rule for memory when $f = 2$; we will now proceed to deduce an approximate relation between the successive quantities $a_1 \; a_2 \; \ldots\ldots\ldots \; a_{f-1} \; a_f$, or between the additional numbers of years, or multiples of equal intervals of time, which are required to make a single capital P pass through the successive stages of accumulation, by compound interest, from 1-fold to 2-fold, from 2 to 3-fold, $\ldots\ldots$ from f-fold to $(f+1)$-fold.

Thus, representing generally by $\phi_i{}^{a_r}$ the process of accumulation, at interest (yearly, m^{thly}, or momentaneous), by which the capital P passes from r-fold to $(r+1)$-fold, we have

$$2\,P \; = \; P \cdot \phi_i{}^{a_1} \qquad \therefore \quad a_1 \cdot \mathrm{Log}_e \, \phi_i \quad = \quad \mathrm{Log}_e \, 2$$

$$3\,P \; = \; 2\,P \cdot \phi_i{}^{a_2} \quad \therefore \quad a_2 \cdot \mathrm{Log}_e \, \phi_i \quad = \quad \mathrm{Log}_e \, \frac{3}{2}$$

$$\begin{array}{ccc} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array}$$

$$(f+1)\,P = f \cdot P \cdot \phi_i{}^{a_f} \therefore \quad a_f \cdot \mathrm{Log}_e \, \phi_i \quad = \quad \mathrm{Log}_e \left(1 + \frac{1}{f} \right)$$

or the quantities $a_1 \; a_2 \ldots$ are to each other in the ratios of the logarithms $\mathrm{Log}_e \dfrac{2}{1} \; \mathrm{Log}_e \dfrac{3}{2} \; \ldots\ldots \; \mathrm{Log}_e \left(1 + \dfrac{1}{f} \right)$ respectively.

Hence the *Rates of Velocity* of arithmetical augmentation of capital are in the *inverse* ratios of those logarithms; or

†*Theorem* 8:—If the specific velocity of *doubling* be represented by unity, the relative velocities of attaining successive units of capital would be represented by

$$1, \quad \frac{\text{Log}_e 2}{\text{Log}_e \frac{3}{2}}, \quad \frac{\text{Log}_e 2}{\text{Log}_e \frac{4}{3}}, \quad \ldots\ldots\ldots\ldots\ldots \frac{\text{Log}_e 2}{\text{Log}_e \left(1 + \frac{1}{f}\right)},$$

or by the logarithms of the number 2 taken to the successive bases $\frac{3}{2} \cdot \frac{4}{3}, \ldots\ldots\ldots \left(1 + \frac{1}{f}\right)$, or,* very nearly by

$$1, \quad 1.70, \quad 2.40, \quad 3.10, \quad 3.80, \quad \&c.$$

which are the terms of an arithmetic progression of which the common difference is .70, a number which has already been used in Art. 15. (See forward, Section 4.)

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* [These terms are obtained thus: by note to Art. 13

$$\frac{\text{Log}_e 2}{\text{Log}_e \left(1 + \frac{1}{f}\right)} = .69315 \left\{ f + \frac{1}{2} - \frac{1}{12f} + \frac{1}{24f^2} - \&c. \right\}$$

$$= \left\{ \left[1 + (f-1) \times .70 \right] - \left[f \times .00685 - .04657 - \frac{69315}{12f} \right] + \&c. \right\}$$

$$= \left\{ 1 + (f-1) \times .70 \right\} \text{ nearly } \text{———————} (1).$$

if we neglect the other terms, which are small until f is very large, and in the aggregate do not affect the first decimal place of the value of $\dfrac{\text{Log}_e 2}{\text{Log}_e \left(1 + \frac{1}{f}\right)}$,

a degree of approximate accuracy sufficient for the determination of *ratios*, and agreeing with the results obtainable from the Table of Hyperbolic Logarithms. The results above are in deficit, while f does not exceed 5, and the converse for subsequent values.]

SECTION II.

OF PRESENT VALUE AND DISCOUNT.

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ART. 18.—When money is calculated at compound interest, the present value, or sum to be given at present, instead of a payment due at the end of a certain number of years, must be such that, if laid out at interest for that time, it would become equal to the amount due. The problem of determining the *present value* is consequently the inverse of finding the *amount,* to which a sum of money would accumulate at compound interest. The principles adduced in Section I. will apply here.

The discount on a given sum is the difference between its amount at the future time when it will be due and its present value.

Let P = the present value,

S = the sum due at the end of n years (called the amount in Section I.)

i = the yearly rate of interest per pound,

then P invested at compound interest i for n years must become equal to S, $\therefore$ by Art. 1, $P.(1 + i)^n = S$

$$\therefore P = \frac{S}{(1 + i)^n} = S\,(1 + i)^{-n} \dots\dots\dots\dots\dots (1).$$

where n is an integer.

And if D = the discount,

$$D = S - P$$

$$= S\left\{1 - (1 + i)^{-n}\right\} \dots\dots\dots\dots\dots\dots (2).$$

If the value of D be expanded by the Binomial Theorem,

$$D = S\left\{1 - \left(1 - n\,.\,i + \frac{n\,(n + 1)}{1\,.\,2}\,.\,i^2 - \&c. \dots\right)\right\}$$

$$= S\,.\,n\,i - \&c.$$

shewing that the common rule in practice of taking $D = S\,n\,i$ is found by neglecting the other terms of the series.

If n be not a whole number, then equation (2) Art. 1, must be used.

19.--Since $P = \dfrac{S}{(1 + i)^n}$

if we have a table shewing the amount $(1 + i)^n$ to which £1 will accumulate in n years at compound interest, the present value of any sum S due in n years will be equal to the quotient of S divided by $(1 + i)^n$.

Example: To find the present value of £30 due at the end of 5 years, supposing interest to be compound at 3 per cent. :—

Now Table 3 shews that the amount of £1 in 5 years at 3 per cent. is £1·1592.

$$\therefore \text{ the present value of } £30 = \frac{30}{1\cdot1592} = £25\cdot8799$$

20.—If the interest, instead of being supposed payable only *once* a year, be payable, in m equal portions $\dfrac{i}{m}$, m times a year;

then, as before, $P \left(1 + \dfrac{i}{m} \right)^{m\,n} = S$

$$\therefore P = S \cdot \left(1 + \frac{i}{m} \right)^{-m\,n} \dotfill (3).$$

$$D = S \left\{ 1 - \left(1 + \frac{i}{m} \right)^{-m\,n} \right\}$$

21.—If the interest be realised momently or $m = \infty$, then, by Art. 3, $P \cdot e^{n\,i} = S$

$$\therefore P = S e^{-n\,i} \dotfill (4).$$

$$D = S \left(1 - e^{-n\,i} \right)$$

It will be observed, that the problems connected with *present values* differ from those relating to the *amount* of money by the introduction of $-n$ for $+n$.

22.—Since $(1 + i)^{-n} = (1 + i)^{-n_1} \cdot (1 + i)^{-n_2}$

where $n = n_1 + n_2$, we have for present values a property corresponding to that in Art. 4, viz. *Theorem* 9:—

The present value of £1, due at the end of n years, is equal to the product of the present values of £1 due at the end of n_1 and n_2 years respectively.

Similarly where $n = n_1 + n_2 + n_3 + $ &c.

23.—It has been shewn that, when interest is supposed payable *once* a year, the present value of a sum due n years hence is $= S \cdot (1 + i)^{-n}$, but when interest is supposed payable m times a year, the present value $= S \cdot \left(1 + \dfrac{i}{m} \right)^{-mn}$

Now $\left(1 + \dfrac{i}{m} \right)^{m}$ is greater than $(1 + i)$, which can be seen at once by expanding $\left(1 + \dfrac{i}{m} \right)^{m}$.

Hence, $\left(1 + \dfrac{i}{m} \right)^{mn}$ is $> \left(1 + i \right)^{n}$

$\therefore \left(1 + i \right)^{-n}$ is $> \left(1 + \dfrac{i}{m} \right)^{-mn}$

$\therefore S \cdot \left(1 + i \right)^{-n}$ is $> S \left(1 + \dfrac{i}{m} \right)^{-mn}$

Or, *The present value of any sum* S *due n years hence, is greater, if interest be supposed payable only* once *a year, than if it be supposed payable m times a year*.

Similarly : *The present value is less in proportion to the greater frequency of the intervals in each year, at which the interest is supposed payable*.

24.—If the present value P of a sum S due n years hence be given by the tables, supposing interest payable *once* a year, the present value P_1 can be deduced when interest is payable m times a year.

$$\text{For } P_1 = S.\left(1 + \frac{i}{m}\right)^{-mn} = S\left(1 + i\right)^{-n}.\left\{\frac{\left(1 + \frac{i}{m}\right)^m}{1+i}\right\}^{-n}$$

$$= P.\left\{\frac{1 + m.\frac{i}{m} + \frac{m.(m-1)}{1.2}.\frac{i^2}{m^2} + \&c..}{1+i}\right\}^{-n}$$

$$= P\left\{\frac{1 + i + \frac{1.\left(1-\frac{1}{m}\right).i^2}{1.2} + \&c.....}{1+i}\right\}^{-n}$$

$$= P\left\{1 + \frac{1-\frac{1}{m}}{1.2}.i^2\right\}^{-n} \text{ nearly, whence neglecting}$$

higher powers of i, which, i being a decimal fraction of the order $\frac{1}{10^2}$, may be done provided n be not very large.

$$P_1 = P\left\{1 - \frac{n.\left(1-\frac{1}{m}\right)}{1.2}.i^2\right\} \text{ nearly} \ldots \ldots \ldots (1).$$

Example: Table 8 shews that, when interest is payable yearly, the present value P of £10 due 4 years hence at 5 per cent. is $= 8.227$.

If interest be payable half-yearly, or $m = 2$

$$\text{Then } \frac{n.\left(1-\frac{1}{m}\right)}{1.2}.i^2 = 4.\frac{\left(1-\frac{1}{2}\right)}{2}(.05).^2$$

$$= .0025$$
$$\therefore P_1 = 8.227\,(1 - .0025)$$
$$= 8.227 \times .9975 = 8.2064.$$

25.—Respecting the difference between the *present values* of the same sum S due at the end of n years, according as it is calculated at compound interest i_1 per pound or i_2 per pound ; or on *the mode of ascertaining the surplus profit in discounting bills, or shares, payable at a long date:* —

Let P_{i_1} = present value at the rate of interest i_1

$$P_{i_2} = \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots i_2$$

If interest be realised only *once* a year,

$$P_{i_1} - P_{i_2} = S\,(1 + i_1)^{-n} - S\,(1 + i_2)^{-n}$$
$$= S \left\{ (1 + i_1)^{-n} - (1 + i_2)^{-n} \right\} \ \dots\ (1).$$

If interest be realised *m times* a year,

$$P_{i_1} - P_{i_2} = S \left\{ \left(1 + \frac{i_1}{m}\right)^{-mn} - \left(1 + \frac{i_2}{m}\right)^{-mn} \right\} \dots (2).$$

If interest be realised *momently,*

$$P_{i_1} - P_{i_2} = S \left\{ e^{-n i_1} - e^{-n i_2} \right\} \ \dots\dots\dots\dots (3).$$

From these equations we have *Theorem* 10:—That the difference between the present values of a sum of money S due in n years, estimated at different rates of interest, increases up to a certain point with the value of n and then diminishes. That is to say, if one person A obtain a present loan P_{i_1} from another person B, in return for which he is to pay S at the end of n years; and A, out of the money he has received, lend a sum P_{i_2} to a third party C, for which at the end of the n years he is also to receive S, which will enable to pay off his debt to B, then there is some value of n, such that the immediate profit derived by A is greatest. (*Vide Sect.* 4).

[NOTE to *Art.* 25.— *When the interests are momentaneous, or the expression is a continuous function of the variable* n, *the maximum value can be determined at once by differentiation.*

Taking equation (3), let

$$u = \left\{ e^{-n i_1} - e^{-n i_2} \right\} = \text{a maximum.}$$
$$i_1 \text{ being less than } i_2.$$

Differentiating with regard to n, we get by the property of maxima and minima : (see any Treatise on the Differential Calculus),

$$\frac{du}{dn} = -e^{-n i_1}\,.\,i_1 + e^{-n i_2}\,.\,i_2 = 0$$

$$\therefore \quad \frac{e^{-n i_1}}{e^{-n i_2}} \quad = \quad \frac{i_2}{i_1}$$

$$\therefore \quad e^{n(i_2 - i_1)} \quad = \quad \frac{i_2}{i_1}$$

$$n \cdot (i_2 - i_1) \quad = \quad \text{Log}_e\, i_2 \; - \; \text{Log}_e\, i_1$$

$$n \quad = \quad \frac{\text{Log}_e\, i_2 \; - \; \text{Log}_e\, i_1}{i_2 - i_1} \quad \dots\dots\dots\dots\dots \quad (4).$$

To determine whether this result gives a maximum or minimum, we must differentiate a second time:

$$\therefore \quad \frac{d^2 u}{d n^2} \quad = \quad e^{-n i_1} \cdot i_1^{\,2} \; - \; e^{-n i_2} \cdot i_2^{\,2}$$

$$= \quad - \; e^{-n i_2} \cdot i_2^{\,2} \left\{ 1 \; - \; e^{n(i_2 - i_1)} \cdot \frac{i_1^{\,2}}{i_2^{\,2}} \right\}$$

$$= \quad - \; e^{-n i_2} \cdot i_2^{\,2} \left\{ 1 \; - \; \frac{i_2}{i_1} \cdot \frac{i_1^{\,2}}{i_2^{\,2}} \right\}$$

(by substituting in the bracket the value of u found above),

$$= \quad - \; e^{-n i_2} \cdot i_2 \left\{ i_2 - i_1 \right\},$$

which is *negative*, since i_1 was assumed to be less than i_2 ;
∴ the value of n in equation (4) gives the number of years, for which the difference of the present values is a maximum.

Example: Let $i_1 = \cdot 05 \qquad i_2 = \cdot 06$.

$$n = \frac{\text{Log}_e\, 6 \; - \; \text{Log}_e\, 5}{\dfrac{6 - 5}{100}}$$

$$= 100 \,(\text{Log}_e\, 6 \; - \; \text{Log}_e\, 5)$$
$$= 100 \,(1 \cdot 791759 \; - \; 1 \cdot 609438) \text{ see Table 12.}$$
$$= 18 \cdot 2321 \text{ years,}$$

That is to say, the difference, between the present values of the same sums discounted respectively at 5 and 6 per cent. momentaneous interest, is greatest, when they are due at the end of $18 \cdot 2322$ years,

The above process will not serve for *yearly* interest, as the function of n varies by *finite* yearly increments in the value of n, and Differentiation does not apply. The very definition of a differential co-efficient has, by a strange oversight, been overlooked by several skilful writers on Interest, who have, probably through want of consideration, applied the differential calculus. But the time may be deduced indirectly from equation (4) by substituting, for the *yearly* interest, the equivalent momentaneous rate.]

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SECTION III.

ON ANNUITIES.

—

ART. 26.—To find the *amount* of a yearly annuity of £1, payable for *n* years, supposing compound yearly interest at *i* per pound.

Unless the contrary be mentioned, annuities are supposed payable at the *end* of each year; and on this hypothesis tables are usually constructed. It will hereafter be shewn how such tables can be adapted to find the *amount* or *present value* of annuities payable at the *beginning* of each year or otherwise.

The motive for the analytical investigations in this section, proceeding on the supposition of the annuities being payable at the *end* of each year, or other interval of time, consists in the simplicity attending the reference of annuities to that Sum, which would purchase them, or to that of which the annuity is the Interest; as, in either case, whether it be purchased, or payable as interest, each instalment is due at the *end* of each year.

Let A_n be the symbol of the *amount* of an annuity of £1 for *n* years.

The expression can at once be found from that of the amount of a *single* sum £1.   Art. 1.

For $(1 + i)^n =$ the *amount* of a single sum £1 at yearly interest *i* per pound in *n* years.

∴ $\dfrac{(1 + i)^n}{i}$ is the accumulated *amount* of a single sum $£\dfrac{1}{i}$ at yearly interest £1 on the sum $\dfrac{1}{i}$ in *n* years.

The difference $\dfrac{(1 + i)^n}{i} - \dfrac{1}{i}$ is therefore caused solely by the

accumulations of the yearly £1 during that time, or it = the amount of £1 annuity in n years.

$$\therefore A_n = \frac{(1 + i)^n - 1}{i} \dots\dots\dots\dots (1).$$

So that an annuity-table can be calculated at once from a table, which gives the accumulation of a single sum and its compound interest for any time. (*Vide Table* 3.)

27.—Aliter. Again, A_n = the sum of the amounts, to which each periodic instalment of the annuity, separately, accumulates at compound interest.

Now the *first* instalment accumulates during $(n - 1)$ years, and therefore amounts to $(1 + i)^{n-1}$. The *second* instalment bears compound interest for one year less, and therefore amounts to $(1 + i)^{n-2}$, and so on. The *last* instalment being paid at the end of the nth year bears no interest, and its amount therefore is merely £1.

$$\therefore A_n = (1 + i)^{n-1} + (1 + i)^{n-2} + \dots + (1 + i) + 1$$

$$= £1 \cdot \frac{\{(1 + i)^n - 1\}}{(1 + i) - 1} \text{ (by the principle of geometric series.)}$$

$$\therefore A_n = £1 \cdot \frac{(1 + i)^n - 1}{i}$$

$\therefore$ For an annuity of £a the expression is

$$a \cdot \frac{(1 + i)^n - 1}{i} \dots\dots\dots\dots\dots (2).$$

In this equation the duration of the annuity is represented by n *years*, but it is obviously true whatever be the finite intervals of time, of which n is an integral number, and for each of which interest after the rate of i per pound is due. When solved with regard to any of the quantities which enter into it, any one of them can be found in terms of the rest. It may be mentioned,

that the solution required for determining i presents peculiar diffi-culties, from the equation for solution being of the nth order.—(See Art. 45 in this Section.)

28.—Equation (1) will admit of many varieties of form accord-ing to the different conditions affecting the quantities which enter it:—As, whether the annuity or the interest are paid in more fre-quent intervals than once a year; or, whether the periods at which the annuity is supposed payable are the same, or differ from those at which the interest is due. In this Section we shall, however, notice only those cases, where the periods are the same for the in-stalments both of annuity and interest.

Let the annuity and interest be both payable m times a year in equal portions $\dfrac{a}{m}$, $\dfrac{i}{m}$ respectively, i being the *nominal yearly* rate of interest per pound;

Then we have to find the *amount* of an annuity $\dfrac{a}{m}$ payable during $m \cdot n$ intervals, each equal to the mth part of a year, making the calculations at $\dfrac{i}{m}$ rate of interest. Hence equation (1) at once gives, putting $\dfrac{a}{m}$, $\dfrac{i}{m}$ and $m \cdot n$, for a, i and n re-spectively,

$$
\mathrm{A}'_n = \left(\frac{a}{m}\right) \frac{\left(1 + \dfrac{i}{m}\right)^{m\,n} - 1}{\left(\dfrac{i}{m}\right)}
$$

$$
\therefore \quad \mathrm{A}'_n = a \cdot \frac{\left\{\left(1 + \dfrac{i}{m}\right)^{m\,n} - 1\right\}}{i} \ldots (2)
$$

And by making $m = 2$, or 4, &c., we have the amount of annui-ties supposed payable half-yearly, quarterly, &c.

29.—If the annuity and interest be both supposed payable at momentaneous intervals, then,

$$A'_n = \frac{a}{i}\left(e^{n \cdot i} - 1\right)\dots\dots\dots\dots(3)$$

30.— Since $A_{n+1} = \dfrac{(1 + i)^{n + 1} - 1}{i}$

$$= \frac{(1 + i)^n - 1}{i} + (1 + i)^n$$

$$= A_n + (1 + i)^n$$

$$\therefore A_{n+1} - A_n = (1 + i)^n \dots\dots\dots\dots\dots(4)$$

$$= \text{Amount of a single sum at interest in } n \text{ years.}$$

Hence, inversely, †*Theorem* 11: —

A table of the amount of a *single* sum can be deduced, if required at once, by taking the *differences* of an *Annuity* Table.

31.—To find the *present value* of a yearly annuity of £1 for n years, payable at the *end* of each year.

Let P_n = present value required.

By a simple demonstration, as in Art. 26, since the present value of £1 due in n years $= (1 + i)^{-n}$

The present value of the periodic instalments of *interest* i on the £1 must alone $= 1 - (1 + i)^{-n}$

(Since the diminution of value is produced by the interest deducted.)

$\therefore$ Dividing both sides by i

$$P_n = \text{the present value of an annuity of } \pounds 1 = \frac{1 - (1 + i)^{-n}}{i} \dots (1)$$

And an *annuity* table of present values can be deduced at once from a given table of the present value of *single* sums.

32.—Aliter,—again, P_n is the *sum* of the *present values* of each of the annuity payments discounted at compound interest.

Now the present value of the 1st annuity payment of £1,

discounted for 1 year, is $\dfrac{1}{1 + i}$

„ the present value of the 2nd

discounted for 2 years, is $\dfrac{1}{(1 + i)^2}$

„ the present value of the 3rd

discounted for 3 years, is $\dfrac{1}{(1 + i)^3}$

&c. &c.

Similarly the present value of the last or n^{th} annuity payment of £1 disounted for n years is $\dfrac{1}{(1 + i)^n}$

$$\therefore P_n = £1 \left\{ \frac{1}{(1 + i)} + \frac{1}{(1 + i)^2} + \cdots + \frac{1}{(1 + i)^n} \right\}$$

And this is true whatever be the value of n.

Summing this series by the rule of geometric progression,

$$P_n = \left\{ \frac{1 - \dfrac{1}{(1 + i)^n}}{i} \right\} = \left\{ \frac{1 - (1 + i)^{-n}}{i} \right\}$$

And for an annuity of £a the expression is

$$= a \left\{ \frac{1 - (1 + i)^{-n}}{i} \right\} \dots\dots\dots\dots\dots(2)$$

Tables 9, 10 and 11 give the value of annuities at various rates of interest.

33.—The result in Art. 32 might have been obtained directly by observing, that the present value of an annuity for n years is

equal to the present value of the *amount* of the annuity at the end of n years discounted for that time.

$$\therefore \; P_n = \frac{A_n}{(1+i)^n}$$

$$= \frac{1}{(1+i)^n} \left\{ \frac{(1+i)^n - 1}{i} \right\} \quad \text{(By Art. 26.)}$$

$$\therefore \; P_n = \left(\frac{1 - (1+i)^{-n}}{i} \right), \text{ as before.}$$

$$* \text{ or } \frac{1}{P_n} - \frac{1}{A_n} = i \; \dots\dots\dots\dots\dots\dots\dots\dots\dots \; (2 \text{ bis}).$$

Hence †*Theorem* 12 : — *The difference between the* Reciprocals *of the* present value *and* amount *of an annuity of* £1 *is equal to the rate of* interest *allowed per pound.*

Example: The *present value* of an annuity of £11·72 a year for 10 years, at 3 per cent., is £100; then, if the *amount* were desired to be known at the end of 10 years, eqⁿ (2 bis) would give it at once equal £11·4 nearly.

Again, eqⁿ (2 bis) gives

$$\frac{1}{P_{n-1}} - \frac{1}{P_n} = \frac{1}{A_{n-1}} - \frac{1}{A_n} \; \dots\dots\dots (2 \text{ ter}).$$

or †*Theorem* 13 : — *The difference of the reciprocals of the present values of an annuity is the same as that of the reciprocals of the corresponding annuity amounts.*

34.—Since $P_{n-1} = \dfrac{1 - (1+i)^{-(n-1)}}{i}$

$$= \frac{1 - (1+i)\cdot(1+i)^{-n}}{i}$$

$$= \frac{1 - (1+i)^{-n}}{i} - (1+i)^{-n}$$

$$= P_n - (1+i)^{-n}$$

$$\therefore (1+i)^{-n} = P_n - P_{n-1} \; \dots\dots\dots\dots\dots\dots\dots (3)$$

---

* [This equation (2 bis) presents a property, that may be made of the greatest practical service, in deducing, without reference to tables, the *present value* of an annuity when the *amount* is known, and the converse. See also Section 4.]

i.e. the present value of a *single* sum due in n years $=$ the *difference* of the present values of an annuity for n and $(n-1)$ years.

Whence, inversely, †*Theorem* 14 :—A table of present values for *single* sums can be deduced from a table of annuity-present values by taking the differences.

35.—If the annuity and interest be payable in m equal portions each year, the present value becomes

$$P'_n = \frac{a}{m} \cdot \frac{1 - \left(1 + \frac{i}{m}\right)^{-mn}}{\frac{i}{m}}$$

$$= \frac{a}{i} \cdot \left\{ 1 - \left(1 + \frac{i}{m}\right)^{-mn} \right\} \ldots \ldots (4)$$

And by putting $m = 2, 4,$ &c. we have the present value of annuities payable half-yearly or quarterly, &c.

36.—* If the annuity, as well as the interest, be payable momently, then

$$P = \frac{a}{i}\left(1 - e^{-ni}\right) \ldots \ldots \ldots \ldots (5)$$

---

* [The results given above and in Art. 29 for momentaneous interest can be found at once thus:—

  Let the time, during which the annuity is payable, be represented by T;

  $dt =$ an element of time;

  a_1 i_1 be the rates of annuity and interest respectively payable in each unit of time;

  $\therefore a_1\, dt =$ the rate of annuity in the time dt

  $\therefore$ Amount of the annuity $= \int_o^T a_1 \cdot e^{i_1 t}\, dt = a_1 \cdot \dfrac{e^{i_1 T} - 1}{i_1}$

Also

  Present value of the annuity $= \int_o^T a_1 \cdot e^{-i_1 t}\, dt = a_1 \cdot \dfrac{1 - e^{-i_1 \cdot T}}{i_1}$

the integration being effected between the limits $t = o$ and $t = $ T.]

37.—To determine the relations between the *amounts* of a yearly annuity of £1, according as it is supposed payable for *n* years, at the *end* or at the *beginning* of each year.

Let A_n = the amount of annuity for *n* years, payable at the *end* of each year;

Then A_{n+1} =   do.   for $(n+1)$ years, &c.

Also let A_n'' =   do.   for *n* years payable at the *beginning* of each year.

Then, as in Art. 27,

$$A_{n+1} = (1+i)^n + (1+i)^{n-1} + \ldots + (1+i) + 1$$

and $A_n'' = (1+i)^n + (1+i)^{n-1} + \ldots + (1+i).$

This value of A_n'' is found by remarking that the *first* instalment of the annuity is improved for *n* years, and the *last* instalment for one year.

$$\therefore \quad A_n'' \quad = \quad A_{n+1} - 1 \ldots \ldots \ldots (1)$$

This formula is important, as it enables the amount of yearly annuities, payable at the beginning of each year, to be determined from a Table for annuities payable at the end of each year.

38.—To determine the *present value* of an annuity of £1 a year for *n* years, payable at the *beginning* of each year, from a Table giving the present value of the same annuity, supposing it to be paid at the *end* of each year.

Let $P_{n-1} =$ the present value of an annuity for $(n-1)$ years, payable at the end of each year;

$\quad P^{\text{II}}_n =$ the same for n years, payable at the beginning of each year.

Now, by Art. 32,

$$P_{n-1} = \frac{1}{(1+i)} + \frac{1}{(1+i)^2} + \dots + \frac{1}{(1+1)^{n-1}}$$

$$P^{\text{II}}_n = 1 + \frac{1}{(1+i)} + \frac{1}{(1+i)^2} + \dots + \frac{1}{(1+i)^{n-1}}$$

$$\therefore \quad P^{\text{II}}_n = 1 + P_{n-1} \quad \dots \dots \dots \dots (2)$$

Example (see Table 10).

We find that £4·5797 is the *present value* of £1 a year payable at the *end* of each year for 5 years, calculated at 3 per cent. rate of interest.

Therefore £5·5797 is the present value of £1 a year payable at the *beginning* of each year for 6 years.

39.—In the preceding propositions we have determined the amount and present value of annuities. We shall now proceed to examine the practical application of the formulæ.

A given sum P is borrowed for n years. To determine what annuity a, paid for that time in m equal portions $\dfrac{a}{m}$ every year, will pay off the principal and interest thereon also supposed due m times a year, $m \cdot n$ being an integer.

$$\text{Here } P = \frac{a}{m} \cdot \frac{1 - \left(1 + \dfrac{i}{m}\right)^{-m \cdot n}}{\dfrac{i}{m}}, \quad (\text{Art. 32.})$$

$$\therefore \left(\frac{a}{m}\right) = \frac{P\left(\dfrac{i}{m}\right)}{1 - \left(1 + \dfrac{i}{m}\right)^{-m \cdot n}} \quad \dots \dots \dots \dots \dots (1).$$

40.—Let the time n be such that the sum P, if unpaid, would accumulate at compound interest to f-fold its original value. See Art. 13.

$$\text{Then } f . \text{P} = \text{P} \left\{ 1 + \frac{i}{m} \right\}^{m.n}$$

∴ From Art. 39 above, $\left(\dfrac{a}{m} \right) = \dfrac{f}{f-1} \cdot \text{P} \left(\dfrac{i}{m} \right) \ldots \ldots \ldots$ (2).

$$\text{or, } \quad a = \frac{f}{f-1} \cdot \text{P} . i \ldots \ldots \ldots \ldots \ldots \text{(3)}.$$

Hence, †*Theorem* 15:—If a sum of money be borrowed for such a time, that, if unpaid, it would amount to f-fold its original value, then the annuity which would pay it off, principal and interest, in that time is equal to $\dfrac{f}{f-1}$ times one year's interest on the debt.

The accuracy of the theorem requires that the intervals, at which the instalments of the annuity are paid, should be aliquot parts of the whole period over which it extends. When the interval is small, as in the case of monthly payments, the formula (2) may be applied without reservation, and differs by an inappreciable quantity from the truth; and even for yearly payments the error in (3) is practically of no importance.

In proceeding to apply this theorem, we shall consider f as given, and equal to some whole number, in which case $m.n$ is always fractional, but this circumstance, for the reasons above given, will not interfere with the practical accuracy of the solution.

41.—Let $f = 2$, or the time be that in which money would double at compound interest.— See Art. 13.

∴ From equation (3), the annuity $= 2 \, \text{P} . i \ldots \ldots$ (1)

or, †*Theorem* 16: — If a sum of money be borrowed for such a number of years, that if unpaid it would by yearly compound interest double itself, then the debtor can liquidate his debt with

interest in that time by a yearly annuity equal to *twice* one
year's interest on the sum borrowed; the last payment of the
debtor being a fractional portion of the year's annuity propor-
tionate to the fractional number of days.

42.—If the payments be made monthly, as in Building So-
cieties:

The monthly payment = twice the interest for one month.

Example 1.—In a 14 years' Building Society, calculated at
5 per cent. monthly rate of interest, the shares are £120, of which
the present value is £60, because money doubles itself in nearly
14 years at 5 per cent.; to find the monthly payment $\dfrac{a}{12}$ for
14 years, which will pay off a debt of £60, including principal
and interest thereon as it accrues,

$$\text{Here} \quad P = 60$$
$$i = \cdot05$$
$$\frac{i}{12} = \frac{.05}{12}$$

∴ the monthly payment $\left(\dfrac{a}{12}\right) = P \times \dfrac{2\,i}{12} = $ £·5.

$$= 10^{\text{sh}}$$

That is to say, 10^{sh} a month for nearly 14 years will pay off a
debt £60 borrowed at the beginning.

This explains the principle of those Societies that charge 10^{sh}
a month for that purpose.

Example 2.—In 10 years' Societies formed on a basis of 7 per
cent.

As before, $P = 60$, but $i = \cdot07$.

∴ the monthly payment $\left(\dfrac{a}{12}\right) = P \times \dfrac{2\,i}{12}$

$$= 60 \times \frac{\cdot14}{12} = \text{£·7}$$
$$= 14^{\text{sh}}$$

Therefore a monthly payment of 14^{sh} for about 10 years will pay off the debt £60 with interest. Hence the charge of 14^{sh} a month in such Societies.

43 —The theorem in the preceding articles, which has been so investigated to bring forward certain points in the working of Benefit Building Societies, may also be proved thus, and put under another form.

If a single sum £1 accumulates in a certain time to £f

∴ The periodic interest i on the £1 has amounted to £$(f-1)$

(since it is by the interest that the result is produced).

∴ Dividing both sides by i, we have

†*Theorem* 17:—The amount of an annuity of £1

(in the time in which a single sum becomes f-fold its original value,) is equal to $£\dfrac{f-1}{i}$

$$\text{or} \quad = \; £\frac{100\,(f-1)}{\text{rate of interest per cent.}}$$

Ex. Let $f = 2$, then,

†*Theorem* 18 :—The amount of £1 a year, in the *exact* time in which a single sum would double, is equal $\dfrac{£100}{\text{rate per cent.}}$

44.—If P be a present sum borrowed, and it be determined to set aside every year a certain proportionate amount (as c per cent.) in the shape of a repayment annuity to repay principal and interest at the nominal yearly rate of i per pound: — To determine the number of years n in which the debt would be cleared off.

Here the annuity repayment is $\dfrac{c}{100} \cdot$ P

$$\text{Hence} \quad P = \frac{c\,P}{100} \cdot \left\{ \frac{1-(1+i)^{-n}}{i} \right\}$$

$$\therefore \; \frac{100 \cdot i}{c} = 1 - (1+i)^{-n}$$

$$(1+i)^{-n} = 1 - \frac{100 \cdot i}{c}$$

* [The reader will notice this word "*exact*," as it is not intended to introduce two approximations into the theorem.]

$$- n \cdot \text{Log.} (1 + i) = \text{Log.} \left(1 - \frac{100 \cdot i}{c} \right)$$

$$\therefore \quad n = - \ \frac{\text{Log.} \left(1 - \dfrac{100 \cdot i}{c} \right)}{\text{Log.} (1 + i)} \ \ldots \ldots \ldots (1).$$

45.—To determine the rate of interest at which a given annuity will amount to a given sum in a stated number of years:

$$\text{then } A_n = \frac{a}{i} \left\{ \overline{1 + i}^n - 1 \right\}$$

$$\therefore (1 + i)^n = \frac{A_n}{a} i + 1$$

No complete method has yet been discovered for solving this equation of the nth degree; several modes of approximation have, however, been given by various eminent writers on this subject, which serve to determine the value of i with great exactness, although they are rather complicated in their application. The formulæ are obtained by expanding $(1 + i)^n$ by the Binomial theorem, and deducing a result by neglecting terms involving powers of i above the third. The following appears to give the nearest approximation :

$$\text{Let} \quad d = \left\{ \frac{A_n}{a \cdot n} \right\}^{\frac{2}{n - 1}} - 1$$

$$\text{Then } i = \frac{\{12 + (n + 1) \cdot d\} \, d}{12 + 2 (n + 1) \, d} \ \ldots \ldots \ldots \ldots (1).$$

46.—For ordinary practical purposes a value, which can be corrected by logarithms, may be deduced in the following manner from a table giving the *amounts* of annuities at successive rates of interest.

Let A_{i_1} = the amount of £1 a year in n years at i_1 per pound rate of interest ;

$A_{(i_1 - \frac{1}{100})}$ = the amount at $\left(i_1 - \frac{1}{100} \right)$ per pound rate of interest ;

Then supposing the amounts for consecutive rates of interest to ascend by equal differences, we have, whether i be greater or less than i_1, as the signs will rectify themselves:

$$\frac{i - i_1}{i_1 - (i_1 - \frac{1}{100})} = \frac{\frac{A}{a} - A_{i_1}}{A_{i_1} - A_{(i_1 - \frac{1}{100})}}$$

$$\therefore \quad i = i_1 + \frac{\frac{A}{a} - A_{i_1}}{100 \left(A_{i_1} - A_{(i_1 - \frac{1}{100})} \right)} \cdots \cdots (2)$$

This result will be slightly in *excess*, because in reality the difference between successive amounts of annuities increases more rapidly than the corresponding increments of interest.

Example: Let £6 a year amount to £120 in 10 years at i per pound yearly interest, then $\frac{A}{a} = 20$, $n = 10$.

To obtain the nearest approximation, we will take i_1 equal to the highest rate in Table 9, which is 10 per cent., whence

$$A_{.10} = 15 \cdot 9374$$
$$A_{.09} = 15 \cdot 1929$$
$$\therefore \quad i = \cdot 10 + \frac{20 - 15 \cdot 9374}{100 \{15 \cdot 9374 - 15 \cdot 1929\}}$$
$$= \cdot 15 \text{ nearly.}$$

One or two trials by logarithms, on substituting this value in the equation

$$10 \text{ Log. } (1 + i) = \text{Log. } (1 + 20 i)$$

give the correct value $\quad i = \cdot 145$

or the rate per cent. $\quad = 14\frac{1}{2}$.

47.—To determine the value of i when the present value, the annuity, and the number of years are given.

The equation for solution is $P = a \cdot \dfrac{1 - (1 + i)^{-n}}{i}$ which

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presents the same difficulty as that in Art. 45. The nearest approximate formula is:

$$i = \frac{\{12 - (n-1)\,d\}\cdot d}{12 - 2\,(n-1)\,d} \dots\dots\dots\dots (3)$$

where $\quad d = \left\{\dfrac{a\,n}{P}\right\}^{\frac{2}{n+1}} - 1$

48.—For practical purposes let, as before, P_{i_1}, $P_{(i_1 - \frac{1}{100})}$ be the present values of an annuity of £1 a year at the two highest rates of interest given by the tables. Then assuming the present value of an annuity to decrease uniformly as the interest increases, we have

$$\frac{i - i_1}{i_1 - (i_1 - \frac{1}{100})} = \frac{P_{i_1} - \dfrac{P}{a}}{P_{(i_1 - \frac{1}{100})} - P_{i_1}}$$

$$\therefore\quad i = i_1 + \frac{P_{i_1} - \dfrac{P}{a}}{100\,(P_{(i_1 - \frac{1}{100})} - P_{i_1})} \dots\dots (4)$$

which will give i greater or less than i_1 according as P_{i_1} is greater or less than $\dfrac{P}{a}$. The true value can be obtained thence in one or two trials by logarithms.

49.—If the annuity be *deferred*, or do not commence for n_1 years after the time at which it would otherwise have begun, (that is, the first payment is at the end of the $(n_1 + 1)^{\text{th}}$ year) and then last for the term of n years, the formula for P_n can be easily modified. Thus, v. Art. 31, the *present value* of the deferred annuity will of course be $\dfrac{P_n}{(1 + i)^{n_1}}$

$$= \frac{(1 + i)^{-n_1} - (1 + i)^{-\overline{n + n_1}}}{i}$$

SECTION IV.

PRACTICAL CONSIDERATIONS RELATING TO INDUSTRIAL ASSOCIATIONS.

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ART. 50.—In a permanent Building Society the Investers subscribe with the view of receiving, at the end of a given time, certain shares, which are equivalent to their payments, with compound yearly interest, after the rate of i per pound. The subscriptions are, however, lent to borrowers at i_1 per pound rate of interest, i_1 being greater than i. The payments of the Borrowers are made at the end of each year, so as to repay principal and interest in a given term of years, which is the same for all. To determine the advantage derived by the society by the yearly difference $(i_1 — i)$ in the rates of interest, or in other words, *what portion of the repayment income* may be annually written off as surplus profit.

Let a = the yearly income received in repayment of various loans amounting to P.

x = the annual profit.

n = the term of years for which P is lent.

$$\therefore P = a \cdot \frac{1 - (1 + i_1)^{-n}}{i_1}$$

Now at i per pound rate of interest $(a — x)$ would have been the annual repayment.

$$\therefore P = (a - x) \frac{1 - (1 + i)^{-n}}{i}$$

$$\therefore a \cdot \frac{i}{i_1} \cdot \frac{1 - (1 + i_1)^{-n}}{1 - (1 + i)^{-n}} = a - x$$

$$\therefore x = a \cdot \left\{ 1 - \frac{i}{i_1} \cdot \frac{1 - (1 + i_1)^{-n}}{1 - (1 + i)^{-n}} \right\} \dots\dots(1).$$

When the society lends for various periods, or different values of n, then x also varies; and the portion of the repayment in-

come, which may be annually written off as profit, diminishes slowly as n increases, passes through a minimum, and then steadily increases. For the two rates 5 and 7 p. c. the minimum is upon a loan for thirteen years, at all other periods the difference is greater. In clause 12, art. 151,* in the set of rules given in Chapter VII. for a permanent Building Society, we recommend only a portion of the surplus income to be carried to the Management and Contingent Fund.

51.—A member borrows £P for n years at $\dfrac{i_1}{12}$ per pound *monthly* rate of interest. This loan he is to repay by periodic instalments including principal and interest. To find the *difference* between the requisite payments according as they are annual or monthly.

If he pay *annually*, let $a =$ annual payment.

monthly, $\dfrac{b}{12} =$ monthly payment.

$$\therefore \; P = a \, \frac{1 - (1 + i_1)^{-n}}{i_1} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1).$$

$$\text{Or, } P = \frac{b}{12} \cdot \frac{1 - \left(1 + \dfrac{i_1}{12}\right)^{-12 \cdot n}}{\dfrac{i_1}{12}} \dots\dots\dots\dots\dots\dots\dots\dots (2).$$

$$\therefore 0 = a \cdot \left\{ 1 - (1 + i_1)^{-n} \right\} - b \left\{ 1 - \left(1 + \frac{i_1}{12}\right)^{-12n} \right\}$$

$$b = a \cdot \frac{1 - (1 + i_1)^{-n}}{1 - \left(1 + \dfrac{i_1}{12}\right)^{-12n}}$$

$$\therefore a - b = a \cdot \frac{(1 + i_1)^{-n} - \left(1 + \dfrac{i_1}{12}\right)^{-12n}}{1 - \left(1 + \dfrac{i_1}{12}\right)^{-12n}} \dots\dots\dots\dots (3).$$

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* [Although the repayment-difference passes through a minimum, the per centage of advantage shown by comparing the difference with the repayment is always increasing.]

In the permanent society described in Chapter IV. the repayments are calculated by equation (1). If it were practically possible to invest the money of the society every month as soon as received, then the value of b given by equation (2) would cover the repayment of the loan P with interest, and there would be a yearly gain, in the receipts, represented by $(a - b)$.

52.—To determine the excess of Accumulation obtained at the end of n years, by the receipt and immediate reinvestment of the monthly subscriptions at *monthly* interest after the rate of i_1 per pound; when the Investers are only promised the accumulation of their subscriptions, as if paid yearly and invested at compound yearly interest i per pound.

Let $A =$ the amount at $\dfrac{i_1}{12}$ per pound monthly interest,

$B =$ the amount at i per pound yearly interest,

$\dfrac{a}{12} =$ the monthly subscription,

$$\therefore A = \frac{a}{12} \left\{ \frac{\left(1 + \frac{i_1}{12}\right)^{12n} - 1}{\frac{i_1}{12}} \right\}$$

$$B = a \left\{ \frac{(1 + i)^n - 1}{i} \right\}$$

$$A - B = a \left\{ \frac{\left(1 + \frac{i_1}{12}\right)^{12n} - 1}{i_1} - \frac{(1 + i)^n - 1}{i} \right\} \;\; .. (1).$$

53.—If the repayments of the Borrowers be deferred n_1 years, the annual instalment for n years, to liquidate the debt with the arrears of interest thereon, will be given by the equation

$$P \cdot (1 + i_1)^{n_1} = a \cdot \frac{1 - (1 + i_1)^{-n}}{i_1}$$

$$\therefore \quad a = P \cdot i_1 \cdot \frac{(1 + i_1)^{n_1 + n}}{(1 + i_1)^n - 1} \quad \ldots \ldots (2).$$

whence the values of n can be obtained with facility by means of one table, viz. Table 3.

54.—Note to page 49. On the adjustment of the amount of contribution per share to be paid by Borrowers in a terminating Building Society, as their quota towards making up a deficiency in the amount required at the epoch of its expected termination, in order to enable the Investers to receive their shares in full.

Let D = the deficiency,

m = number of Investers' (or unadvanced) shares,

f = total monthly income from subscriptions on the same,

g = total monthly income from Borrowers' repayments, where the payments on each share are not necessarily the same:—

Then:—1st. If the society's existence, and consequently the members' subscriptions, were continued for the purpose of making up D; as no new Borrowers would be found, the money received must remain idle or be invested in the public funds.

Let x = number of extra months' subscription,

i = the *average* monthly interest obtained per pound,

and suppose the existing assets to produce, through interest, just sufficient income to cover the current office expenses during the extra months,

$$\therefore D = (f + g) \cdot \left\{ \frac{(1 + i)^x - 1}{i} \right\}$$

$$\therefore (1 + i)^x = 1 + \frac{D\,i}{f + g}$$

$$\therefore x = \frac{\text{Log.}\left(1 + \dfrac{D\,i}{f + g}\right)}{\text{Log.}\,(1 + i)} \dots\dots\dots\dots\dots\dots (1).$$

2dly. If, instead of continuing the society for the additional months, the holders of unadvanced shares consent to waive their right to receive them in full, and be willing to put up with some loss, in order to receive whatever money they can at once; the Borrowers must contribute their share of the *present value* of D, or of

$$D\,(1 + i)^{-x} \quad \text{or} \quad \frac{D}{1 + \dfrac{D\,i}{f + g}}$$

Hence the unit of contribution from all members, both Investers and Borrowers, will be

$$\frac{1}{f + g} \cdot \left(\frac{D}{1 + \dfrac{D\,i}{f + g}} \right) \quad \text{or} \quad \frac{D}{(f + g) + D\,i}$$

And the Borrowers must contribute g units, or a sum

$$= \frac{D\,g}{(f + g) + D\,.\,i} \dots\dots\dots\dots\dots\dots (2).$$

of which each Borrower contributes respectively in proportion to his units of monthly repayment to the society on his loan.

The remaining loss on each Invester's share will be

$$\frac{D}{m} \cdot \left\{ 1 - \frac{g}{(f + g) + D\,i} \cdot \right\} \dots\dots\dots\dots (3).$$

55.—If a *valuation* be made prior to a deficiency being discovered, and it be sought to ascertain the probable future duration of the association, then

If $A =$ clear cash assets over and above outstanding debts, accounts, loans due to bankers, &c.

$e =$ average monthly expense that may be expected,

$x =$ number of future months' duration,

$s =$ amount of each investing share,

$$m\,.\,s = A\,.\,\left\{ 1 + i \right\}^{x} + \left\{ f + g - e \right\} \frac{(1 + i)^{x} - 1}{i} \dots (4).$$

$$\therefore (1 + i)^{x} = \frac{i\,.\,m\,.\,s\,.\, + (f + g - e)}{A\,.\,i + (f + g - e)}$$

$$\therefore \quad x = \frac{\text{Log.}\left\{ 1 + \dfrac{i\,.\,(m\,.\,s - A)}{A\,.\,i + (f + g - e)} \right\}}{\text{Log.}\,(1 + i)} \dots\dots\dots (5).$$

This equation is very simple in application, and depends on only one assumption respecting the future, viz. That a rate of monthly interest i per pound may be counted upon to the very end of the association. The practical judgment of the Actuary will know how to modify it when required.

56.—If no interest be expected to be realized, the result would be obtained either directly,

or by putting $i = 0$ in equation (4)

$$\therefore \quad m \cdot s = A \cdot 1^x + \left\{ f + g - e \right\} \frac{1^x - 1}{0}$$

$$= A + \left\{ f + g - e \right\} \cdot \frac{0}{0} \dots \dots \dots (6).$$

To determine the limiting value of the fraction $\frac{0}{0}$ to which $\frac{(1 + i)^x - 1}{i}$ is equal when $i = 0$, we must expand, or differentiate. Whence

$$\text{Limit} \left\{ \frac{(1 + i)^x - 1}{i} \right\}_{i\,=\,0} = \text{Limit} \left\{ \frac{x\,(1 + i)^{x-1}}{1} \right\}_{i\,=\,0}$$
$$= x$$

Hence substituting in equation (6) we have

$$x = \frac{m \cdot s - A}{f + g - e} \dots \dots \dots (7).$$

57.—In framing the *Liability and Asset* account referred to in art. 101, part 1, care must be taken to avoid giving an erroneous estimate of the present value of the mortgages. The difficulty consists in the circumstance, that their present value is greater, in favour of the society, the less the rate of interest assumed in discounting the repayments which they produce. The best way is to discount at the higher rate of interest i_1, which is charged fundamentally from Borrowers. But it will be necessary to add a caution to the Managers, that the smaller present value, thus afforded in the making up of the society's assets, is merely the result of a proper precaution to avoid producing a fictitious amount of present profit, and that Redemptions should not be allowed upon such terms.

58.—Note to rule 3, clause 109. *Re Paid-up Shares.*—In calculating the single payment P_n to be required from a member in place of the monthly subscription for n years, the present value of the monthly annuity should be discounted at a lower rate of interest i_2 than that which the investers are credited with towards the realization of their shares, and the payment should be treated as due at the beginning of each half year, as a half-yearly annuity.

If $\dfrac{a}{12}$ = the monthly subscription,

$$P_n = \frac{a}{2}\left\{ 1 + \frac{1 - \left(1 + \dfrac{i_2}{2}\right)^{-(2n-1)}}{\dfrac{i_2}{2}} \right\} \dots\dots\dots(1).$$

Sometimes the societies, instead of using this formula, content themselves with discounting the *share s* itself (when it is proposed to pay it up) at i_2 interest, and not the monthly payments. This is not just when i_2 is $< i$, because although the member paying up his share should only receive discount, after i_2 interest, for the time which would elapse before his subscription become due, yet he should be credited with the higher rate afterwards. In other words, Managers use the formula:

$$\text{Single payment} \;=\; \frac{s}{\left(1 + i_2\right)^n}$$

instead of the equitable one given by (1), viz.:

$$\frac{1}{2}\cdot\frac{s\,i}{\left(1 + i\right)^n - 1}\left\{ 1 + \frac{1 - \left(1 + \dfrac{i_2}{2}\right)^{-(2n-1)}}{\dfrac{i_2}{2}} \right\} \dots(2).$$

which is just as easy to use, since a is already known.

We have said that i_2 should be always $< i$, for which see *note in page* 96; it will also be regulated by the consideration as to how far Paid-up Shares are to participate in any surplus expenses or losses, over and above the management and contingent fund,

that may afterwards be discovered. Occasionally an arrangement is made, that, while partaking of the profits, they shall not be called upon to contribute to any excess of expenses or losses. This is a matter of arrangement, according to circumstances. It will, perhaps, in general suit the purposes of a society to covenant that a member paying up the whole of his shares shall be required, in case of future loss, to contribute after a rate proportional to *half* the number of years for which he has paid up. (See *Rule* 12, page 111.)

Too frequently the Managers are willing to discount at the higher rate i, which is taking the other extreme, and would be depriving the society of proper margin, or they charge $\dfrac{s}{(1 + i)^n}$. The correct principle, however, is to adopt the formula (2), which is a value between the two extremes, $\dfrac{s}{(1 + i_2)^n}$ and $\dfrac{s}{(1 + i)^n}$.

In reference to this Article, the reader should consider Art. 25 of this Appendix, which contains an interesting point in the operations of discounting shares.

59.—NOTE to clause 144, page 108. *Re Withdrawals of unad-vanced Shares.*—Referring to the rule, we propose that, according to the number of years' subscriptions paid, the rate of interest allowed on withdrawals should be raised.

Let a = one year's subscription,

n = number of years in which the shares are realizable,

i = the rate of interest, at which the subscriptions are credited, on the average, so as to amount to a share s in n years.

Let no interest be allowed on withdrawal until the end of the second year, when it shall be at the rate of $\dfrac{i}{n-1}$ per pound per annum, and let the interest allowed per annum ascend by equal differences, until it becomes i per pound, at the end of the last year for which the subscriptions are payable. Then the amount,

that might be paid to any member withdrawing at the close of the rth year, would be represented generally by

$$W_r = a \cdot \frac{\left(1 + \dfrac{r-1}{n-1} i\right)^r - 1}{\dfrac{r-1}{n-1} i} \quad \dots\dots\dots\dots (1).$$

and by giving to r the values $1, 2, \dots n$, a table of withdrawals would be formed from the corresponding values of $W_1 \ W_2 \dots W_n$. It will be noticed that W_n must be $= s$, and that W_1 is a fraction of the form $\dfrac{0}{0}$, but that expression reduces itself to $W_1 = a$, on expanding, or differentiating by the usual rule in such cases.

60.—NOTE to Rule 12, page 111. *On the apportionment of any surplus profit, expenses, or losses,* which may be ascertained to exist after a periodic *valuation of the society's affairs,* at the end of any number of years n. In the case of expenses or losses, it would be supposed that they exceed the *management and contingent fund* and so leave a margin to be made up by the holders of unadvanced shares according to the terms of the clause 152.

Let $P =$ the surplus profit or loss to be divided.

$m_1 =$ number of existing unadvanced shares which were issued in the *first* year, or counted as of n year's standing.

$m_2 =$ number of existing unadvanced shares which were issued in the *second* year, or counted as of $(n-1)$ years standing.

$m_n =$ number of existing unadvanced shares which were issued in the nth year, or counted as of 1 year's standing.

In which are included the paid up shares (see preceding article).

Then the aggregate units, among which the apportionment is to be made, are

$$= n \cdot m_1 + (n-1) \cdot m_2 + (n-2) \cdot m_3 + \dots + 2 \cdot m_{n-1} + m_n.$$

The standard unit $U_1 = \dfrac{P}{n \cdot m_1 + (n-1)\,m_2 + \ldots + 2 \cdot m_{n-1} + m_n}$.

So that a share taken out in the rth year, or of $(n - r + 1)$ year's standing, has a right to receive in the way of profit, or is bound to contribute if it be loss that is apportioned, a sum

$$= (n - r + 1)\ U_1 \ldots \ldots \ldots \ldots \ldots (1).$$

Ex.: Let $P = \pounds 27 \ldots 10s.$ surplus profit.

$$n = 3$$
$$m_1 = 125$$
$$m_2 = 50$$
$$m_3 = 75$$

Then $U_1 = \pounds \cdot 05$ or 1sh

or the shares issued in the first year are entitled to 3s. per share, those in the second year to 2s., and those in the third to 1s.

If the apportionment be so made, as to have relation to the interest which the member is supposed to have acquired in the society, or to the then value of his shares, on the principle adopted in many *Life assurance offices*, the standard unit would become

$$U_2 = \frac{P}{m_1\,A_n + m_2\,A_{n-1} + \ldots \ldots + m_{n-1}\,A_2 + m_n} \cdot \cdot (2).$$

Where $A_r = \dfrac{(1 + i)^r - 1}{i}$ generally.

The past payments being treated as made at the *end* of each year, and improved at i per pound interest (see **Arts. 47** and **58**, part 1). Hence a share taken out in the rth year would bear $A_{n+1-r} \cdot U_2$ as its apportionment. Such a mode of calculating, at all events, the division of surplus profits, would, perhaps, be very *desirable*, as it would correspond to the principle of accumulation by which the unadvanced shares themselves are realised; but it would involve such an amount of trouble and consequently expense in the calculation, that it would be injudicious for any industrial association to incur it.

NOTE to Arts. 63, 113, 151, Part. 1. *On the Contributions to be required from Borrowers towards the Management and Contingent Fund.*

61.—The rate can be determined by the following considerations : —

In the articles referred to it has been sufficiently explained, that a fund must be formed to provide for unforeseen contingencies, which occur in Building and other similar institutions, and entail pecuniary loss, either through some investments turning out to have been made upon bad security, or by the legal and other expenses incurred in seeking the recovery of the unliquidated amount due by a borrower. The probability of loss does not arise from any inherent defect in the security itself usually accepted by these associations, but rather in the want of sufficient skill on the part of the officers, (who are employed to estimate its value or its goodness in a legal point of view,) or of proper attention in watching, afterwards, that the mortgagor does not in any way infringe the covenants which are involved in the *tenure* of the property. As, however, in the settling of the rules or deed of constitution, care must be taken that the investers (or those members who supply the money for advances) may not be unprotected in case of such error in judgment or inattention ; and as, from the restricted means of the peculiar class from which the borrowers usually proceed, comparatively little, if any, protecting margin can be preserved between the saleable value of the property and the sum lent by the society, it is clear that an equitably adjusted contribution must be required, by way of commission or otherwise, from each borrower, that a Management and Contingent Fund may be formed with it, to which would be added the difference in the rates of interest referred to in Art. 57, Part 1; so that, on the average of investments, no positive deficiency of money may arise in the assets of the association.

If all the loans were of equal magnitude the rate per cent. could be adjusted by the results of the past experience of other similar institutions; but the case in practice is one of advances of every variety in amount within given limits; and the contingency of

pecuniary loss is not dependent upon the *Amount* of the advance, but is rather a function of human skill, experience and attention; hence, when a borrower seeks for an advance exceeding the magnitude of the majority of the loans for which a rate of contribution has already been settled, he entails, with an *equal chance* of loss, greater *money risk;* and he must pay to the contingent fund somewhat more than after the rate per cent. for smaller loans.   For example : suppose that the majority of the advances are to the extent of 100*l.*, and the proper per centage on each were 1*l.*, then for special loans of 200*l.* or 300*l.* a higher contribution than 2*l.* or 3*l.* would be requisite; since, in the event of that individual security, upon which the larger sum is advanced, becoming a source of loss, there would not be sufficient money supplied by the other loans to make it up.   For further illustration : let 10,000*l.* be advanced, not in 100 loans of 100*l.*, but in 98 of that amount and one of 200; if the rate from all of the contingent contributions were one per cent., the 100*l.* thus received would be sufficient only in case of loss arising from one of the 98 loans, consequently the rate for the 200*l.* should be so adjusted that the society may be paid, for speculating to its extent, in a rate proportioned to the money risk.

Instead of deducing a scale from the law of probabilities, based upon a fundamental assumption for the average of loans, we propose to meet the necessity of a fund, and to diminish the pressure upon the borrowers, by availing ourselves of the consideration that, as the society is essentially established to benefit both classes of its members by the operations of compound interest, and as its duration is of unlimited extent, the indemnity rate upon a loan, say, $= f.\ A$, may with propriety be proportioned to the restorative power of compound interest; or, upon each successive unit A of the capital advanced, the contribution may bear a relation to the *relocities* of *arithmetical augmentation*, by which a single capital A passes through the successive stages of accumulation from one-fold to two-fold, two-fold to three-fold, and so on, of its original magnitude; since it is thus that can be measured very accurately the advantage derived by a borrowing member, in being enabled to commute his otherwise unproductive *rent* payments to a land-

lord into the purchase-money of valuable property, which is all the more profitable to him, that the original payments converted are larger. Hence, referring to Art. 17 in this Appendix, the commission upon advances should be proportioned to the quantities represented by $\dfrac{\text{Log. } 2}{\text{Log. } \left(1 + \dfrac{1}{f}\right)}$ for successive values of f, in this manner, viz. :

Let the commission on a sum of $£A$, supposed to be the general amount of loans, be $= c$, then, upon a loan of 2 A, it should be $= c$ upon the first unit A, and $c \cdot \dfrac{\text{Log. } 2}{\text{Log. } \dfrac{3}{2}}$ upon the *second* A, or together,

$$= c \cdot \left\{ 1 + \frac{\text{Log. } 2}{\text{Log. } \dfrac{3}{2}} \right\}$$

Again, upon a loan of 3 A, it would be $c \left\{ 1 + \dfrac{\text{Log. } 2}{\text{Log.} \dfrac{3}{2}} \right\}$ upon 2 A, and $c \left\{ \dfrac{\text{Log. } 2}{\text{Log. } \dfrac{4}{3}} \right\}$ upon the 3rd A ; or upon the whole 3 A the commission should be $= c \left\{ 1 + \dfrac{\text{Log. } 2}{\text{Log.} \dfrac{3}{2}} + \dfrac{\text{Log. } 2}{\text{Log. } \dfrac{4}{3}} \right\}$

And generally, upon a loan of f . A, the commission should be

$$= c \cdot \left\{ 1 + \frac{\text{Log. } 2}{\text{Log.} \dfrac{3}{2}} + \frac{\text{Log. } 2}{\text{Log. } \dfrac{4}{3}} + \dots + \frac{\text{Log. } 2}{\text{Log. } \left(1 + \dfrac{1}{f}\right)} \right\}$$

$$= c \cdot f \cdot \left\{ 1 + \frac{\cdot 70}{2} (f - 1) \right\} \text{ nearly} \dots \text{see note } (a) \dots \dots (1).$$

when f is an integer.

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[(a) The remarkable logarithmic series, from which this result is deduced, can only be summed with difficulty when the number of terms is considerable ; as it requires transformations similar to those by which the summation of

62.—If it be desired to create an annual income to the fund, and the probable amount of loan business each year be ascertained, an equation can at once be deduced for determining the proper value of c to start with.

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logarithms of numbers in arithmetic progression is effected, such as in the case of the eulerian integral usually designated by the letter Γ. The process depends upon the well known formula for integrating the function u_x: viz.

$$\Sigma u_x = \int u_x \, dx - \frac{u_x}{2} + \frac{B_1}{1 \cdot 2} \frac{d u_x}{d x} - \frac{B_3}{1 \cdot 2 \cdot 3 \cdot 4} \frac{d^3 u_x}{d x^3} + \ldots\ldots$$

$$+ (-1)^{n+1} \frac{B_{2n-1}}{1 \cdot 2 \cdot 3 \ldots (2n)} \frac{d^{2n-1} u_x}{d x^{2n-1}} + \&c.$$

where B_1, B_3, $\ldots B_{2n-1}$ are Bernoulli's numbers equal to $\frac{1}{6}$, $\frac{1}{30}$, $\ldots$, $(-1)^{n+1} \cdot \frac{\log. (1 + \Delta)}{\Delta} \cdot 0^{2n}$ respectively.

Putting $N_f = \frac{1}{\text{Log. } 2} + \frac{1}{\text{Log. } \frac{3}{2}} + \frac{1}{\text{Log. } \frac{4}{3}} + \ldots + \frac{1}{\text{Log. } \left(1 + \frac{1}{f}\right)}$

we can deduce

$$N_f = \frac{f^2}{2} + f - \frac{\text{Log. } f}{12} - C - \frac{1}{12 f} + \frac{31}{720 f^2} + \&c. \ldots\ldots (2)$$

in which the numerical calculation gives $C = \cdot 00063$.

Hence, referring to the text,

$$N_f \cdot \text{Log. } 2 = f \left(\frac{f}{2} + 1\right) . 693147 \text{ nearly.}$$

$$= f \left\{ f \times \cdot 34657 + . 693147 \right\}$$

$$= f \left\{ 1 + . 03972 + (f - 1) \times . 34657 \right\}$$

$$= f \left\{ 1 + \frac{\cdot 70}{2} (f - 1) \right\} \text{ very nearly.}$$

This arithmetic progression holds up to $f = 21$ within several thousand parts of unity; and for all practical purposes the terms of N_f after the two first may be neglected. *The same approximate result might have been obtained from equation* (1), *note to Art.* 17.

It will be noticed that (2) gives for N_f or the summation of the *reciprocals* of logarithms of the form $\log. \left(1 + \frac{1}{f}\right)$ a series, one part increasing with f, the other decreasing, analogous in form to the *Sum* of $\log. f = \text{Log. } (1 . 2 . 3 \ldots . f.)$

$$= \text{Log.} \sqrt{2 \pi} + \left(f + \frac{1}{2}\right) \text{Log. } f - f + \frac{1}{12 f} - \frac{2}{720} \cdot \frac{1}{f^3} + \&c.]$$

63.—In general, although c is deducted at once from the advance A, it is made to depend upon the duration of the mortgage, or it is taken $= n \cdot k \cdot A$, when the loan is for n years (k being a fraction).

Example: Let $k \cdot A = 4^{\text{sh}}$ per annum upon a loan $A = £200$, granted for ten years, or the commission be £1 per cent. upon advances of £200, then the deduction upon a loan of £600 for ten years would, by equation (1), be $= £2 \times 3 \left\{ 1 + \dfrac{\cdot 70}{2} 2 \right\}$ $= £10.2$ or £10 : 4s., which is £1 : 14s. per cent. on the £600 loan.

64.—f is treated in the arithmetic progression (1) as an integer, but the application can be modified without difficulty to calculate the deduction on advances not multiples of A.

The Deposit System.

Respecting Single Deposits.

Art. 65.—To extend the operations and benefits of Industrial Associations, Sums of money might be received as deposits, for a nominal period of years, at interest, with power of withdrawal on demand, or with very short notice, of a portion thereof. Such a system would afford to the depositors the usual convenience of the savings banks, in respect to the withdrawal of their money; while they would obtain the advantages of a much more remunerative interest, provided the agreement were, that the interest already *due* upon any portion withdrawn (if that should happen) should remain over with the rest of the deposit, as an investment to be received at the expiration of the originally agreed term of years. On such an hypothesis, the *withdrawable* part of the principal should be considered as producing a less periodic interest, than both the other part of the deposit and the general instalments of interest themselves do when reinvested; or it should be treated as laid out in readily convertible securities, such as the public funds, exchequer

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bills, &c., which produce but a moderate rate of interest. The
remainder of the deposit, and the instalments of *interest* from time
to time accruing on the withdrawable portion, (not being liable
to unexpected demand,) can be laid out in much less available
security, such as mortgages on land or houses at a higher rate of
interest, or in fact they might be engaged in the society's operations.
For example, if £10,000 were the amount of numerous deposits
on such terms for an agreed period, and £2000 were withdrawable
on demand, that sum should be invested in ready security, say
at $2\frac{1}{2}$ or 3 per cent., and the remainder £8000 in more lucrative
investment at 5 per cent., or even more, with the periodic annuity
instalments of £50 or £60 a-year on the £2000, as from time to
time they come in.

66.—*We have said that the right of withdrawal might be on
demand, as the floating income of the society would much exceed,
under ordinary circumstances, the average amount of applica-
tions.* A power, nevertheless, could and should be reserved, to
the committee of management or directors, to *suspend withdrawal
payments,* if an unexpected pressure caused too great inconveni-
ence or menaced the stability of the society. As the institution
would be based upon principles of co-operative mutuality, such a
power would be strictly equitable.

67.—Let D_n = the amount payable in return for a deposit P, if
invested and not withdrawn for n years.

$\dfrac{P}{m}$ = the portion which may, if required, be withdrawn on
demand.

i^1 = the rate of interest at which $\dfrac{P}{m}$ is invested.

i = a higher rate, at which $\dfrac{m-1}{m}$. P, and the periodic in-
stalments $\dfrac{P \cdot i^1}{m}$ of interest at i^1 per pound on $\dfrac{P}{m}$, can be invested
during the n years.

Then it is plain that D_n is the amount of P at i per pound for n years, less the amount of a small annuity $\dfrac{P}{m}(i - i')$, accumulated at i interest, arising from the lower rate at which $\dfrac{P}{m}$ is invested; or

$$D_n = P \left\{ (1 + i)^n - \frac{i - i'}{m} \cdot \frac{(1 + i)^n - 1}{i} \right\} \dots (1).$$

This equation contains results afforded by known tables such as those at the end of this work, so that a single deposit table can be readily calculated.

An identical result, but in another form, might be obtained, by a different mode of reasoning, in which

$$D_n = \frac{P}{m} \left\{ \left[m - 1 + \frac{i'}{i} \right] (1 + i)^n + 1 - \frac{i'}{i} \right\} \dots (2).$$

68.—Let the *whole* be withdrawable on demand, then $m = 1$ in equation (1) or (2),

$$\therefore D'_n = P \left\{ (1 + i)^n - (i - i') \cdot \frac{(1 + i)^n - 1}{i} \right\} \dots (3).$$

or

$$D'_n = P \left\{ 1 + i' \cdot \frac{(1 + i)^n - 1}{i} \right\} \dots (4).$$

69.— Let the mth part of P not be withdrawable for μ years, which is the more general case, $n > \mu$, then

$$D_{n \mid \mu} = P \left\{ \overline{1 + i}^n - \frac{i - i'}{m} \frac{(1 + i)^{n - \mu} - 1}{i} \right\} \dots (5).$$

In practice, μ might be taken with advantage equal to 3.

Example:—Let £10,000 be deposited for 10 years with the understanding that, after 3 years, £2,000 may be withdrawn on demand.—Let 3 per cent. be the annual rate of interest allowed

upon the £2,000; and 5 per cent. be that upon the £8,000, and upon the annuity £60 a year.—Then by eqⁿ (5),

$$D_{10\,|\,3} = 10,000 \left\{ (1\cdot05)^{10} - \frac{\cdot02}{5} \cdot \frac{\overline{1\cdot05}^{\,7} - 1}{\cdot05} \right\}$$

$$= 10,000 \left\{ 1\cdot6288 - .\ 004 \times 8\cdot142 \right\}$$

$$= £15,962. \qquad \text{(See Tables 3 and 9)}.$$

70.—To determine a relation between D_p and D_q any two terms in Art. 67, $p < q$.

Then, referring to the mode of investment,

$$D_q = D_p \cdot (1 + i)^{q-p} - \frac{P}{m}(i - i^1) \cdot \frac{(1 + i)^{q-p} - 1}{i} \cdot \cdot (6).$$

If $q = p + 1$, the relation between the successive terms is given by

$$D_{p+1} = D_p \cdot (1 + i) - \frac{P}{m}(i - i^1) \ldots \ldots \ldots \ldots (7).$$

a form suitable for the calculation of the table.

71.—Referring to Art. 69, to determine a relation between two terms $D_{p\,|\,\mu}$ and $D_{q\,|\,\mu}$, where p and q are both greater than μ.

Since the μ years have elapsed, the relation will be identical in form with that (6) of the preceding article, or

$$D_{q\,|\,\mu} = D_{p\,|\,\mu} \cdot (1 + i)^{q-p} - \frac{P}{m}(i - i^1) \cdot \frac{(1 + i)^{q-p} - 1}{i} \cdot \cdot (8).$$

Let $q = p + 1$.

$$\therefore\ D_{p+1\,|\,\mu} = D_{p\,|\,\mu} \cdot (1 + i) - \frac{P}{m}(i - i^1) \ldots \ldots \ldots (9).$$

72.—The case, where p is $< \mu$ and $q > \mu$, need not be considered, as the formula would be of no advantage in constructing a table.—Until $p > \mu$ the equation will be simply $D_p = P(1 + i)^p$; after which equation (9) will serve.

73.—To determine in Art. 69, the remainder of the depositor's claim to be received at the end of the n years, if he withdraw $\dfrac{P}{m}$ when n_1 years $(n_1 < n)$ have just expired.

As by the agreement n_1 must be greater than μ, the effect produced by the withdrawal of $\dfrac{P}{m}$ in reduction of the original amount $D_{n\,|\,\mu}$ will be equal to that amount, which by eq^n (4) $\dfrac{P}{m}$ would produce if deposited, for withdrawal on demand, for $(n - n_1)$ years.

$$\therefore \text{ The remainder } \atop \text{of the claim} \left. \right\} = D_{n\,|\,\mu} - \frac{1}{m} \cdot D'_{(n - n_1)} \;\; \dots \dots \; (10).$$

A simple formula to ascertain the outstanding liabilities of the society upon those deposit shares of which a portion $\dfrac{P}{m}$ has been withdrawn.

If the Table represented by D'_n should not be ready at hand,

$$\text{The remainder of } \atop \text{the claim may} \atop \text{be calculated as} \left. \right\} = \left[D_{n_1\,|\,\mu} - \frac{P}{m} \right] (1 + i)^{n - n_1} \dots (11).$$

74.—Again, Art. 69, suppose that the m_1^{th} part only be withdrawn after n_1 years, where m_1 is $> m$; then the *Remainder of claim* as regards eq^n (10) will still be of the same form, viz.

$$D_{n\,|\,\mu} - \frac{1}{m_1} \cdot D'_{(n - n_1)}$$

But, in respect to eq^n (11), it would be represented by the expression $\left[D_{n_1\,|\,\mu} - \dfrac{P}{m_1} \right] (1 + i)^{n - n_1} - P \cdot \dfrac{m_1 - m}{m \cdot m_1} \cdot (i - i') \cdot$

$$\dfrac{(1 + i)^{n - n_1} - 1}{i} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (12).$$

Where $D_{n_1\,|\,\mu}$ is a value given by the table used by the society to calculate $D_{n\,|\,\mu}$, and the expression is deduced by considering, according to eq^n (1), that $D_{n_1\,|\,\mu} - \dfrac{P}{m_1}$ is a sum of money invested

for $(n - n_1)$ years, with the understanding that a portion of it, equal to $\left(\dfrac{P}{m} - \dfrac{P}{m_1}\right)$, shall be withdrawable on demand.

If the withdrawal, in the preceding articles, take place in the course of any year, and not exactly at the end thereof, the preceding results would require to be modified with an allowance of simple interest for the fractional part of a year.

Annuity Deposits.

75.—Instead of a single deposit, as in Art. 69, let the contract be for a series of periodic deposits, each equal to **P**, during the n years, with the understanding that, after μ years have passed, the mth part of the aggregate deposits invested may be withdrawn on demand, the remainder of the claim standing over to the end of the term. Then, representing by $AD_{n\,|\,\mu}$, the amount to which, if not withdrawn, they would accumulate, we have, since by the hypothesis of the question, the mth part of all the deposits made, once μ years have elapsed, are liable to withdrawal on demand.

$$AD_{n\,|\,\mu} = \left\{ D_{n\,|\,\mu} + D_{\overline{n-1}\,|\,\overline{\mu-1}} + D_{\overline{n-2}\,|\,\overline{\mu-2}} + \ldots + D_{\overline{n-\mu+1}\,|\,1} \right\}$$
$$+ \left\{ D_{n-\mu} + D_{n-\mu-1} + \ldots + D_2 + D_1 \right\} \ldots \ldots \ldots (13).$$

$AD_{n\,|\,\mu}$ thus will be readily found, if the general tables for $D_{n\,|\,\mu}$ and D_n happen to have been calculated for the society.

76.—If not, the expression can be reduced by eq^n (1) and (5), to

$$AD_{n-\mu} = P\left[\left\{ \overline{1+i}^n + \overline{1+i}^{n-1} + \ldots\ldots + \overline{1+i} \right\} - \right.$$
$$- \frac{i - i^1}{m} \cdot \left[\frac{\mu \cdot \overline{1+i}^{n-\mu} + (\overline{1+i}^{n-\mu} + \overline{1+i}^{n-\mu-1} + \ldots + \overline{1+i}) - n}{i} \right] \right]$$
$$= P\left[(1+i)\frac{\overline{1+i}^n - 1}{i} - \frac{i - i^1}{m \cdot i} \left\{ \mu \cdot \overline{1+i}^{n-\mu} + \overline{1+i} \cdot \right. \right.$$
$$\left. \left. \frac{\overline{1+i}^{n-\mu} - 1}{i} - n \right\} \right], \text{ which results contain only quantities,}$$

that can be easily obtained from the ordinary Amount and Annuity tables 3 and 9.

77.—From the preceding equations, we have, when $p > \mu$, a relation between $AD_{p+1|\mu}$ and $AD_{p|\mu}$.

$$AD_{p+1|\mu} = (AD_{p|\mu} + P) \cdot (1 + i) - (p + 1)\frac{P}{m}(i - i')..(15).$$

78.—If a withdrawal take place at the end of n_1 years, and $n_1 \cdot \dfrac{P}{m}$ be withdrawn, the *Remainder of the Claim* (if no further payments be made),

$$= \left\{ AD_{n_1|\mu} - n_1 \cdot \frac{P}{m} \right\}(1 + i)^{n-n_1} \ldots \ldots \ldots \ldots (16).$$

79.—The preceding principle of adopting *two* rates of interest as the basis of a *Savings Fund* presents many advantages; on the one hand, greater inducements would be offered to the industrious to strive to effect savings, through the higher interest they may thus obtain; at the same time that the absence of power to withdraw, in a hurry, more than a small portion of their deposits would act as a check upon subsequent extravagance. Whilst, on the other hand, the government or private company which undertook the investment of the money received would be less exposed to inconvenience or loss through Withdrawals.

On the Purchase of Annuities.

Art. 80.—*Let it be desired to calculate the price* P *of* £1 *a year for* n *years certain, so that the annuity may pay the purchaser a high rate of interest* i *for his money, and yet be sufficient, over and above, to replace the capital* P *expended at the expiration of the term, by investing a portion of the annuity to accumulate at a moderate rate of interest* i' *per pound.* This problem is important, as it not unfrequently happens that a purchaser desires to realize a higher rate of interest for the use of his capital, than he could obtain if he tried to reinvest a portion of the annuity; for instance, he may wish the annuity to pay him 6 or 7 per cent., whilst he might not himself be able to reinvest at more than 3 or 4 per cent.

Let £1 a year for n years amount to A_{i^1} when accumulated at i^1 interest.

Then $\dfrac{1}{A_{i^1}}$ is an annuity, which would amount to £1 in the same time at the same rate of interest.

$\therefore \dfrac{P}{A_{i^1}}$ do.   P   do.

$\therefore$ The annuity of £1, which is purchased at a cost of **P**, should be sufficient to give the purchaser $P\,i$ a year, and leave $\dfrac{P}{A_{i^1}}$ to be invested.

or

$$1 = P\,i + \frac{P}{A_{i^1}}$$

$$\therefore \quad P = \left(i + \frac{1}{A_{i^1}}\right)^{-1} \quad \dots\dots\dots\dots\dots \quad (1).$$

and **P** can readily be calculated by the aid of a table which contains the general amounts of annuities A (see Table 9). *The same could have been deduced from the remarkable property in eq^n 2 bis, Art. 33.*

81.— The result in (1), whilst it practically pays the *purchaser* only i interest for his capital, through his want of power of re-investing at a higher rate than i^1, $(i^1 < i)$, yet in reality is a charge upon the *grantor* of the annuity of a higher rate than i. For if the rate allowed by him to liquidate a loan of £P were only i per pound, **P** would equal

$$\left(i + \frac{1}{A_i}\right)^{-1}$$

or the purchase money that he would receive for granting £1 a year would be more than is shown by equation (1), since $A_i > A_{i^1}$.

82.— The actual rate i_2 that it costs the grantor, who sells £1 a year at the price afforded by (1), would be obtained from

$$P = \frac{1 - (1 + i_2)^{-n}}{i_2}$$

On Deposit Life Assurance and Tontines.

The formulæ for the system of Deposit Life Assurance, which we have previously mentioned, [Art. 35, chapter 2, page 25,] are simple and easily determined. As it presents another feature of provident investment for the savings of the industrious classes, a few words upon the system will not be out of place in this Appendix. The advantage offered consists of the Savings Banks' facilities of withdrawal of the whole or part of the deposit premium, whilst the benefits of an ordinary life office are secured. Adopting the now general notation,

Let l_x = number of lives in existence at age x by the table of mortality adopted.

r = the present value of £1, at i per pound, to be received in one year $= \dfrac{1}{1+i}$

a_x = the present value of an annuity of £1 payable at the end of each year, and to continue during the existence of a life aged x.

or $a_x = \text{Sum} \dfrac{l_{x+y} \cdot r^{x+y}}{l_x \cdot r^x}$ summed between $y = 1$ and $y =$ the number of years of extreme age in the table.

∴ $1 + a_x$ = value of £1 annuity during life, of which the first instalment is payable at once.

∴ £1 = present value of a similar annuity of $\dfrac{1}{1 + a_x}$ a year.

Let p_x = the mathematical annual premium to assure the sum of £1 to be received at the *end* of the year in which the life x may die.

π_x = the office annual premium $= f(p_x)$

1.—Then p_x may be determined from a table of Life Annuities a_x in the usual way, or thus:—A person borrowing £1 at once for the term of his life could repay it with interest by an annual payment at the beginning of each year, consisting of the premium of assurance to restore the principal at his death, and annual interest i per pound, which if paid yearly in advance would be reduced to $\dfrac{i}{1+i}$.

∴ £1 would be repaid by, and is therefore equivalent to, an annuity payment

of $p_x + \dfrac{i}{1+i}$.

But £1 (as we have said in the definition of a_x) would buy an annuity of $\dfrac{1}{1 + a_x}$ on the same life involving the same rate of interest. These two values must be equal:

∴ $p_x + \dfrac{i}{1+i} = \dfrac{1}{1 + a_x}$

∴ $p_x = \dfrac{1}{1 + a_x} - \dfrac{i}{1+i}$ .... (1).

2.—Into the value of a_x, which is made use of in the preceding formula, enter the considerations depending on the table of mortality (see Table XV). That formula itself is identical, as it should be, in form with that, by which would be determined the requisite annual payment at the beginning of each year, or the sinking fund, to accumulate to £1 at the end of a term certain of $x + 1$ years, in terms of the *present* value P_x of an ordinary annuity £1 for x years, where

$$P_x = \frac{1 - (1 + i)^{-x}}{i} \text{ (see Art. 31, Appendix), and}$$

Annual payment or sinking fund $= \dfrac{1}{1 + P_x} - \dfrac{i}{1 + i}$ .... (1 bis)

3.—We may mention here, incidentally, that, if for a_x were substituted the values of an annuity for the whole duration of two or more lives, the formula would bear the same relation with regard to them, as it does to the single life, and the symmetrical form would be preserved.

4.—Let $P =$ the single deposit money to purchase a life assurance policy D_x to be received at death, with the understanding that, after twelve months have elapsed, a sum equal to $\dfrac{P}{m}$ may be withdrawn on demand, or at very brief notice ; then it would be requisite for the safety of the company to invest the withdrawable portions at a much lower rate of interest, or in immediately convertible securities, if it be desired to be always ready to meet all *withdrawal* demands. The chance of early repayment of the *whole* deposit, from being deducted through *death*, does not enter into that consideration, as, on an average of lives, supposing the general funds of the company to be invested in the usual manner, the payments and receipts would follow the law of mortality.

The calculation of D_x will therefore be analogous to that for determining the *single* premium for the assurance of £1 ; with this difference, that our plan consists in keeping the rates of interest allowed upon P or $\left(\dfrac{m-1}{m} P \text{ and } \dfrac{P}{m} \right)$ independent of the rate of interest and margin originally adopted in the determination of π_x , and in making a table containing the values of π_x the basis for calculating D_x ,

Let an ordinary whole life annual premium table be in use by the company.

$i =$ the highest rate of annual interest that the company can afford to credit upon $\dfrac{m-1}{m} \cdot P$.

$i^1 =$ a lower annual rate allowed upon $\dfrac{P}{m}$.

From the moment P is deposited, the assurance risk represented by D_x commences, although, according to the usual theoretical hypothesis (contrary

to the occurrence of actual practice), D_x is not payable until the *end* of the year in which the life (x) may die. Proceeding, however, on that supposition, the sum assured D_x will be equal to the deposit P and a sum $(D_x - P)$ arising from the interests upon P. Now P, deposited, is credited with annual interest

$= P \cdot \dfrac{(m-1)\ i + i^1}{m}$ due at the end of each year, which is equivalent to

$\dfrac{P}{m} \left\{ \dfrac{(m-1)\ i}{1+i} + \dfrac{i^1}{1+i^1} \right\}$ at the beginning.

Hence, since the annual premium π_x paid at the beginning of every year of life would assure £1 payable at the *end* of that year in which the life may die, the deposit P may be considered by the company as producing at the beginning of each year a premium $= \dfrac{P}{m} \left\{ \dfrac{(m-1)\ i}{1+i} + \dfrac{i^1}{1+i^1} \right\}$

$$\therefore D_x = P + \frac{P}{m} \left\{ \frac{(m-1)\ i}{1+i} + \frac{i^1}{1+i^1} \right\} \frac{1}{\pi_x} =$$

$$= P \cdot \left[1 + \frac{1}{m} \left\{ \frac{(m-1)\ i}{1+i} + \frac{i^1}{1+i^1} \right\} \frac{1}{\pi_x} \right] \ \ldots\ldots\ldots\ (2).$$

5.—By this equation, a table of deposit assurances can be deduced from an ordinary life table on substituting the values of π_x at various ages; and the *Deposit-Policies* will be with or without profits, according to the hypothesis relative to π_x. In practice, it would be generally expedient and reasonable not to allow any withdrawals until after a small number of years μ, greater than one, in which case, the eq^n (2) should still be used, as it is not worth while to complicate it by the consideration that during $(\mu - 1)$ years the rate of interest i might be credited on the whole of P. The advantage would be in favour of the company. When μ is not less than 3, we consider that i^1 may be taken $= \cdot025$ and $i = \cdot035$. This will be understood by the consideration that in all investments of this kind accepted by Assurance Companies, or Benefit Building and other similar Societies, the larger the portion of his deposit over which the depositor has power of withdrawal on demand, the greater will be the capital which must be kept by the company in immediately convertible securities to meet sudden withdrawals; and the lower will be the average interest derived on the aggregate of its funds. If six months' or a year's notice were required of intended withdrawal, the case would be different.

6.—If $\pi_x = p_x$, $i^1 = i =$ the same rate involved in p_x, and $m = 1$, $D = 1$, eq^n (2) reduces to

$$1 = P. \left\{ 1 + \frac{i}{1+i} \cdot \frac{1}{p_x} \right\} \ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (3),$$

the ordinary formula expressing the relation between the single premium P and the annual premium p_x to assure £1.

7.—As regards assurers, eq^n (2) gives the amount of policy which an *occasional* deposit would assure upon his life. To the industrious classes one or two smaller policies, created by single deposits, are more convenient than the general system by which a fixed premium is required at regularly recurring intervals, without their having, in most offices, any protection against the loss of the policy, in the event of the assurer's means not enabling him to keep up his payments. The advantage of an ordinary Savings' Bank is also presented, since a portion of his deposit money may be withdrawn on demand. Such policies would thus serve as negotiable commodities in commercial transactions.

8.—Suppose an ordinary *Annual Premium* Policy of Assurance to be taken out by a life aged x years, and, after a certain number of years y, the assurer desire to suspend all future payments, and to obtain, for his acquired interest in the company, a *Deposit-Policy;* then the amount thereof

$$= \text{(office value of old policy)} \times \left[1 + \frac{1}{m} \left\{ \frac{(m-1)\,i}{1+i} + \frac{i^1}{1+i^1} \right\} \frac{1}{\pi_{x+y}} \right]..(4)$$

(the mth part of the office value of the old policy being withdrawable).

9.—If after y years, $\dfrac{\text{P}}{m}$ be withdrawn on a deposit policy, the *diminution* in the policy, (found by reducing eq^n (2) to the case of the whole of the deposit being withdrawable on demand, and applying it to the effect produced by withdrawing $\dfrac{\text{P}}{m}$ $\Big) = \dfrac{\text{P}}{m} \left\{ 1 + \dfrac{i_1}{1+i^1} \cdot \dfrac{1}{\pi_{x+y}} \right\}$ .... (5),

an endorsement upon the original deposit policy would then be made stating that it is diminished to the extent represented by (5).

10.—The Society should always get the benefit of the difference between the *office* and *real* age of the depositor, both at the time of entry and at that of withdrawal, with the distinction that x in (2) should be taken at *next* birthday, but $(x + y)$ in (5) at *last* birthday.

11.—By way of further illustration of the analogy between functions of annuities for *Terms certain* and for the *whole* duration of a life or lives, we will refer to Art. 30, and will show how the property $\dfrac{1}{\text{P}_n} - \dfrac{1}{\text{A}_n} = i$ .... (1) will serve, in the case of a life annuity, to determine the *single premium* S_x *to assure* £1 *at the death of a life aged* x. [In No. 6 of these notes P stands for S_x.]

For the *present value* of an annuity of £1 payable at the end of *every* year, that the life x may enter, is $a_x + \text{S}_x$, this corresponds to P_n in equation (1). Again, the *accumulated amount* of such an annuity by the end of the year in

which life (1) may die would be $1 + \dfrac{a_x}{S_e}$; since it would consist of the last an-nuity payment $+$ the improved amount of a_x, at the close of the duration of the life, which by proportion would be $\dfrac{a_x}{S_x}$; so that $1 + \dfrac{a_x}{S_x}$ corresponds to A_n in (1).

Then, since the analogy should subsist, the equation $\dfrac{1}{a_x + S_x} - \dfrac{1}{1 + \dfrac{a_x}{S_x}} = i$

must hold,

$$\text{whence } S_x = \frac{1 - i \cdot a_x}{1 + i} \quad \dots\dots\dots\dots\dots\dots\dots\dots (6)$$

which is the ordinary formula.

12.—The property in (1) can be remembered by the consideration that it expresses merely that

$$\begin{pmatrix} \textit{The annuity for n years,} \\ \textit{which £1 would purchase} \end{pmatrix} - \begin{pmatrix} \textit{The sinking fund to create} \\ \textit{£1 at the end of n years} \end{pmatrix} = \begin{pmatrix} \textit{One year's} \\ \textit{interest.} \end{pmatrix}$$

Notes to the Tontine Chapter.

The principles referred to therein are simple : —

13.—Let T_x = number of persons alive at age x in the Tontine at an epoch of division,

l_x = number at same age in the table of mortality adopted for the calculation,

$l_{x+r.y} = $ . . . . at age $(x + r \cdot y)$,

a = gross sum to be divided at each division after y years.

Then, by the mortality table, it is probable, that, at the age of $x + r \cdot y$, there will be $T_x \cdot \dfrac{l_{x+r.y}}{l_x}$ alive to partake of the dividends; and the share of each would be *then* $\dfrac{a}{T_x + r \cdot y}$ The present chance of a single person surviving to partake of the rth division is $\dfrac{l_{x+r.y}}{l_x}$

Example : To determine the chance of a male aged 15 living to the age of 60. By Table 13, of 34574 males alive aged 15, 18808 live to be 60 years old. Hence the chance required is $\dfrac{18808}{34574} = \cdot 544$, or the odds are 544 to 456, or 68 to 57 in favour of the event.

14.—If in the course of a Tontine's existence, say at age $x + k$, a shareholder propose to sell the present value of his probable share in one division (say the rth) if he survive it, then the purchase money, supposing money discounted at i per pound, should be

$$\frac{l_{x+ry}}{l_{x+k}} \cdot \frac{1}{(1+i)^{ry-k}} \cdot \text{ (the probable amount of his share.)}$$

$$= \frac{l_{x+r.y}}{l_{x+k}} \cdot \frac{1}{(1+i)^{r.y-k}} \cdot \frac{a}{T_{x+r.y}}$$

But $T_{x+r.y} = \dfrac{l_{x+ry}}{l_{x+k}} \cdot T_{x+k}$

$\therefore$ Purchase-money $= \dfrac{1}{(1+i)^{r.y-k}} \cdot \dfrac{a}{T_{x+k}}$

Or, the present value of his share in the rth division is equal to a, divided by the number, who are *now* alive in the Tontine at the date of the sale, with a discount deducted for the $(r . y - k)$ years, which are to elapse before the division is to take place ; *or it is independent altogether of the probability of surviving to that date.* This could be foreseen by the mere consideration, that the *deduction* to be made for the probability of the purchaser losing his money by the death of the life involved (if the probable future longevity of each existing life be equal as regards their present health) is exactly balanced by the *increase* of the value of his purchase, arising from the probability, that, as one of the Tontine survivors, he would become entitled to a much larger sum, by way of dividend, than $\dfrac{a}{T_{x+k}}$, viz. $\dfrac{a}{T_{x+r.y}}$; Or thus, if the property of the Tontine were divided, at once, he would get the T_{x+k}^{th} part of it ; therefore the equivalents, which he has for sale, now, must be the T_{x+k}^{th} part of each of the periodic divisions a, which represent the property. The sale of any one temporary survivorship dividend reversion could be effected without the sale of his right to participate in any other divisions.

15.—If 2 lives be considered, the chance of 2 lives, of equal ages x_1, *both* surviving the next division, say in k years,

$$= \frac{l_{x_1+k}}{l_{x_1}} \cdot \frac{l_{x_1+k}}{l_{x_1}} = \left(\frac{l_{x_1+k}}{l_{x_1}} \right)^2$$

The chance of *both* dying $= \left(1 - \dfrac{l_{x_1+k}}{l_{x_1}} \right)^2$

The chance that of two lives one or other dies $= \dfrac{l_{x_1+k}}{l_{x_1}} \left(1 - \dfrac{l_{x_1+k}}{l_{x_1}} \right)$

If both lives be males and equal 15 and $k = 45$, the chance that one will live over and the other die before 60, $= \cdot544\ (1 - \cdot544) = \cdot244$ nearly, or the odds in favour of the event, that one, and one only, of two lives will die, are 61 to 189 ; the *relative* chance of each is of course even.

The chance of a single male, now aged x, dying between the age of $x + k_1$ and $x + k_2$ is $= \dfrac{l_{x + k_1} - l_{x + k_2}}{l_x}$.

Example : $x = 15 \quad x + k_1 = 50 \quad x + k_2 = 60$

$l_x = 34574 \quad l_{x + k_1} = 23377 \quad l_{x + k_2} = 18808$

Probability $= \dfrac{4569}{34574} = \cdot132$ nearly, or the odds are about 33 to 217 in favour of the event.

16.—Where it is proposed to make a diminution in the cost of a share, because a life older than the minimum age is nominated to a Tontine, or if the parties were to wish to estimate at any time the present value of a member's interest in the fundamental property of the Tontine, contingent upon his being the last survivor, the calculation must include a comparison of the relative chance of survivorship which the life estimated has with the others ; but the investigation would be too long to be treated of in this Appendix.   It may, nevertheless, be incidentally mentioned, that in questions of *survivorship*, which is to occur in a particular order, so that the survivor may become entitled to property, the calculation is very laborious, even in the case of the order of survivorship of one out of two lives ; unless their ages be equal, and the relative probabilities even.

For example : Suppose that the chance of a life aged x_1 surviving another aged x_2 be required.   For each year the probability would have to be estimated of the survivorship occurring in that particular year.   Let the year be that in which the life x_1 would pass from age $x_1 + k$ to $x_1 + k + 1$; then two contingencies must be considered : either the life x_2 may die between the ages $(x_2 + k)$ $(x_2 + k + 1)$, and the life x_1 complete his $(x_1 + k + 1)^{\text{th}}$ year, which chances would be calculated as in No. 15 of this note ; or both the lives x_1 and x_2 may die in that same year ; the life x_2 dying *before* the life x_1 ; which latter contingency may, with sufficient approximation, be considered as presenting an even chance, and measured by $\frac{1}{2}$. $\dfrac{l_{x_1 + k} - l_{x_1 + k + 1}}{l_{x_1}}$. $\dfrac{l_{x_2 + k} - l_{x_2 + k + 1}}{l_{x_2}}$.   We say

with sufficient approximation, because the quantity, of which $\frac{1}{2}$ is taken and treated as presenting an even chance, is so small, even in the case of questions

upon 2 lives, as not to produce much effect on the general result afforded by the measurement of the first contingency.

The present value of a survivorship Reversion, contingent upon a life x_1 surviving another x_2, would be the aggregate of the probabilities of the event happening in each year, multiplied by corresponding powers of $(1 + i)^{-1}$.

17.—In problems involving a survivorship of one out of three or more lives, the same mode of reasoning must be adopted; but it is important to notice that the complex expression, which the investigation would then assume, may with safety be materially simplified by neglecting *altogether* those contingencies, which cannot affect the main value of the reversion, such as in the instance of the second contingency alluded to in the case of only two lives.   Even the complete formula itself, when practically calculated by any existing table of mortality, could only be used by introducing tabular approximations; and it would not be difficult to show, that the neglect of unimportant contingencies, in the formula for valuing a survivorship reversion on three or more lives, would actually tend to correct the errors unavoidably created by tabular approximations.

TABLES.

TABLE I.

Shewing the *Decimal* corresponding to every Penny in the *Pound.*

s.	d.	Decimal.	s.	d.	Decimal.	s.	d.	Decimal.	s.	d.	Decimal.	s.	d.	Decimal.
0	1	.004	4	1	.204	8	1	.404	12	1	.604	16	1	.804
0	2	.008	4	2	.208	8	2	.408	12	2	.608	16	2	.808
0	3	.012	4	3	.212	8	3	.412	12	3	.612	16	3	.812
0	4	.017	4	4	.217	8	4	.417	12	4	.617	16	4	.817
0	5	.021	4	5	.221	8	5	.421	12	5	.621	16	5	.821
0	6	.025	4	6	* .225	8	6	.425	12	6	.625	16	6	.825
0	7	.029	4	7	.229	8	7	.429	12	7	.629	16	7	.829
0	8	.033	4	8	.233	8	8	.433	12	8	.633	16	8	.833
0	9	.037	4	9	.237	8	9	.437	12	9	.637	16	9	.837
0	10	.042	4	10	.242	8	10	.442	12	10	.642	16	10	.842
0	11	.046	4	11	.246	8	11	.446	12	11	.646	16	11	.846
1	0	.050	5	0	.250	9	0	.450	13	0	.650	17	0	.850
1	1	.054	5	1	.254	9	1	.454	13	1	*.654	17	1	*.854
1	2	.058	5	2	.258	9	2	.458	13	2	.658	17	2	.858
1	3	.062	5	3	.262	9	3	.462	13	3	.662	17	3	.862
1	4	.067	5	4	.267	9	4	.467	13	4	.667	17	4	.867
1	5	.071	5	5	.271	9	5	.471	13	5	.671	17	5	.871
1	6	*.075	5	6	.275	9	6	.475	13	6	.675	17	6	.875
1	7	.079	5	7	.279	9	7	.479	13	7	.679	17	7	.879
1	8	.083	5	8	.283	9	8	.483	13	8	.683	17	8	.883
1	9	.087	5	9	.287	9	9	.487	13	9	.687	17	9	.887
1	10	.092	5	10	.292	9	10	.492	13	10	.692	17	10	.892
1	11	.096	5	11	.296	9	11	.496	13	11	.696	17	11	.896
2	0	.100	6	0	.300	10	0	.500	14	0	.700	18	0	.900
2	1	.104	6	1	.304	10	1	.504	14	1	.704	18	1	.904
2	2	.108	6	2	.308	10	2	.508	14	2	.708	18	2	.908
2	3	.112	6	3	.312	10	3	.512	14	3	.712	18	3	.912
2	4	.117	6	4	.317	10	4	.517	14	4	.717	18	4	.917
2	5	.121	6	5	.321	10	5	.521	14	5	.721	18	5	.921
2	6	.125	6	6	.325	10	6	*.525	14	6	.725	18	6	.925
2	7	.129	6	7	.329	10	7	.529	14	7	.729	18	7	.929
2	8	.133	6	8	.333	10	8	.533	14	8	.733	18	8	.933
2	9	.137	6	9	.337	10	9	.537	14	9	.737	18	9	.937
2	10	.142	6	10	.342	10	10	.542	14	10	.742	18	10	.942
2	11	.146	6	11	.346	10	11	.546	14	11	.746	18	11	.946
3	0	.150	7	0	.350	11	0	.550	15	0	.750	19	0	.950
3	1	.154	7	1	.354	11	1	.554	15	1	*.754	19	1	*.954
3	2	.158	7	2	.358	11	2	.558	15	2	.758	19	2	.958
3	3	.162	7	3	.362	11	3	.562	15	3	.762	19	3	.962
3	4	.167	7	4	.367	11	4	.567	15	4	.767	19	4	.967
3	5	.171	7	5	.371	11	5	.571	15	5	.771	19	5	.971
3	6	.175	7	6	*.375	11	6	.575	15	6	.775	19	6	.975
3	7	.179	7	7	.379	11	7	.579	15	7	. 79	19	7	.979
3	8	.183	7	8	.383	11	8	.583	15	8	. 83	19	8	.983
3	9	.187	7	9	.387	11	9	.587	15	9	.787	19	9	.987
3	10	.192	7	10	.392	11	10	.592	15	10	.792	19	10	.992
3	11	.196	7	11	.396	11	11	.596	15	11	.796	19	11	.996
4	0	.200	8	0	.400	12	0	.600	16	0	.800	20	0	1.000

* *Example.*—The value of the Decimal .075, is 1s. 6d.—.225, is 4s. 6d. —.375, is 7s. 6d.—.525, is 10s. 6d.—.654, is 13s. 1d.—.754, is 15s. 1d.— .854, is 17s. 1d.—.954, is 19s. 1d.

TABLE II.

(A.) *Shewing the sum per Pound to which a Rate of Interest per cent. is equivalent.*

				s.	d.	
2 per cent. interest is equal to		nearly	0	5	in the pound.
$2\frac{1}{2}$	,,	,,	exactly	0	6	,,
3	,,	,,	nearly	0	7	,,
$3\frac{1}{2}$	,,	,,	,,	0	$8\frac{1}{2}$	,,
4	,,	,,	,,	0	$9\frac{3}{4}$	,,
$4\frac{1}{2}$	,,	,,	,,	0	11	,,
5	,,	,,	exactly	1	0	,,
$5\frac{1}{2}$	,,	,,	nearly	1	$1\frac{1}{4}$	,,
6	,,	,,	,,	1	$2\frac{1}{2}$	,,
7	,,	,,	,,	1	5	,,
8	,,	,,	,,	1	$7\frac{1}{4}$	,,
9	,,	,,	,,	1	$9\frac{3}{4}$	,,
10	,,	,,	exactly	2	0	,,

(B.) *To calculate the Interest for One Year on any sum.*

If the rate be } multiply the sum } and the product is the
2 per cent. } by .02 or $\frac{1}{50}$ } interest required.

If $2\frac{1}{2}$	,,	by .025 or $\frac{1}{40}$	,,	,,
If 3	,,	by .03 or $\frac{3}{100}$	,,	,,
If $3\frac{1}{2}$	,,	by .035 or $\frac{7}{200}$	,,	,,
If 4	,,	by .04 or $\frac{1}{25}$	,,	,,
If $4\frac{1}{2}$	,,	by .045 or $\frac{9}{200}$	,,	,,
If 5	,,	by .05 or $\frac{1}{20}$	,,	,,
If 6	,,	by .06 or $\frac{3}{50}$	,,	,,
If 7	,,	by .07 or $\frac{7}{100}$	,,	,,
If 8	,,	by .08 or $\frac{2}{25}$	,,	,,
If 9	,,	by .09 or $\frac{9}{100}$	,,	,,
If 10	,,	by .1 or $\frac{1}{10}$	,,	,,

REMARK.—To perform the above, it will be remembered that to multiply a quantity by a fraction it must be first multiplied by the numerator, and then the result divided by the denominator of the fraction. The division by 100 can be effected by dividing twice by 10. Similarly the other divisors can be separated, and the quotient obtained by successive divisions.

Example.—To find the interest for one year, at $3\frac{1}{2}$ per cent., on £19. 12s. 8d.

$$
\begin{array}{r}
£19. \quad 12. \quad 8 \\
7 \\
\hline
2)137. \quad 8. \quad 8 \\
\hline
10)68. \quad 14. \quad 4 \\
\hline
10)6. \quad 17. \quad 5\frac{2}{10} \\
\hline
\end{array}
$$

Or the Interest required is   13. $8\frac{92}{100}$
13s. 9d. nearly.

Table III. *can, by means of the following Formulæ, be made to give the results generally required from Tables of Discount or Annuities.*

1. Table VIII. The *present value* of £1 due at the end of any number of years } is equal to { Unity divided by the *Amount*, in Table III., of £1 at the end of the same time

2. Table IX. The *Amount* of an *Annuity* of £1 in any number of years } is equal to { The quotient of : (the *Amount* in Table III., of a *single pound* in the same time, less unity,) divided by (the rate of interest per pound) involved in the calculation.

3. Table X. The *present value* of an Annuity of £1 for any number of years } is equal to { The quotient of unity *diminished* by the *present value* of a single pound, (due at the end of the same time) divided by the rate of interest per pound.*

4. Tables IX and X may be calculated from each other, if either be known by the property. *(Art.* 33 *Appendix).*

that $\dfrac{1}{\text{Present Value of an Annuity.}}$ less $\dfrac{1}{\text{Amount of an Annuity.}}$ } is equal to { a year's interest.

* [The present value required for the division being found from Table III., by the formula of (1).]

TABLE III.

Shewing the Amount to which £1 Principal will increase at various Rates of Compound yearly Interest. (See Table VI.)

At the end of Years.	3 per cent.	3¼ per cent.	3½ per cent.	3¾ per cent.	4 per cent.	4¼ per cent.	4½ per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.
1	1.0300	1.0325	1.0350	1.0375	1.0400	1.0425	1.0450	1.0500	1.0600	1.0700	1.0800
2	1.0609	1.0660	1.0712	1.0764	1.0816	1.0868	1.0920	1.1025	1.1236	1.1449	1.1664
3	1.0927	1.1007	1.1087	1.1167	1.1248	1.1329	1.1411	1.1576	1.1910	1.2250	1.2597
4	1.1255	1.1364	1.1475	1.1586	1.1698	1.1811	1.1925	1.2155	1.2624	1.3107	1.3604
5	1.1592	1.1734	1.1876	1.2021	1.2166	1.2313	1.2461	1.2762	1.3382	1.4025	1.4693
6	1.1940	1.2115	1.2292	1.2471	1.2653	1.2836	1.3022	1.3400	1.4185	1.5007	1.5868
7	1.2298	1.2509	1.2723	1.2939	1.3159	1.3382	1.3608	1.4071	1.5036	1.6057	1.7138
8	1.2667	1.2915	1.3168	1.3424	1.3685	1.3951	1.4221	1.4774	1.5938	1.7181	1.8509
9	1.3047	1.3335	1.3628	1.3928	1.4233	1.4544	1.4860	1.5513	1.6894	1.8384	1.9990
10	1.3439	1.3768	1.4105	1.4450	1.4802	1.5162	1.5529	1.6288	1.7908	1.9671	2.1589
11	1.3842	1.4216	1.4599	1.4992	1.5394	1.5806	1.6228	1.7103	1.8982	2.1048	2.3316
12	1.4257	1.4678	1.5110	1.5554	1.6010	1.6478	1.6958	1.7958	2.0121	2.2521	2.5181
13	1.4685	1.5155	1.5639	1.6137	1.6650	1.7178	1.7721	1.8856	2.1329	2.4098	2.7196
14	1.5125	1.5648	1.6186	1.6743	1.7316	1.7908	1.8519	1.9799	2.2609	2.5785	2.9371
15	1.5579	1.6156	1.6753	1.7370	1.8009	1.8669	1.9352	2.0789	2.3965	2.7590	3.1721
16	1.6047	1.6681	1.7339	1.8022	1.8729	1.9463	2.0223	2.1828	2.5403	2.9521	3.4259
17	1.6528	1.7223	1.7946	1.8698	1.9479	2.0290	2.1133	2.2920	2.6927	3.1588	3.7000
18	1.7024	1.7783	1.8574	1.9399	2.0258	2.1152	2.2084	2.4066	2.8543	3.3799	3.9960
19	1.7535	1.8361	1.9225	2.0126	2.1068	2.2051	2.3078	2.5269	3.0255	3.6165	4.3157
20	1.8061	1.8958	1.9897	2.0881	2.1911	2.2989	2.4117	2.6532	3.2071	3.8696	4.6609
21	1.8602	1.9574	2.0594	2.1664	2.2787	2.3965	2.5202	2.7859	3.3995	4.1405	5.0338
22	1.9161	2.0210	2.1315	2.2477	2.3699	2.4984	2.6336	2.9252	3.6035	4.4304	5.4365
23	1.9735	2.0867	2.2061	2.3319	2.4647	2.6046	2.7521	3.0715	3.8197	4.7405	5.8714
24	2.0327	2.1545	2.2833	2.4194	2.5633	2.7153	2.8760	3.2250	4.0489	5.0723	6.3411
25	2.0937	2.2245	2.3632	2.5101	2.6658	2.8307	3.0054	3.3863	4.2918	5.4274	6.8484

* See Art. 20, page 15, also Section 2, Appendix, for the extension of this Table to any number of years beyond 25.

TABLE IV.

Shewing the Rates of Interest payable only once *a year, which are equivalent to* nominal *annual Rates of Interest actually paid at frequent intervals in each year.   Art. 5, Appendix.*

Nominal annual rate per cent.	Real yearly interest, to which the nominal rates are equivalent when paid :—				
	Yearly.	Half-yearly.	Quarterly.	Monthly.	Momently.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
3 per cent.	3 0 0	3 0 5½	3 0 8¼	3 0 10	3 0 11
4 per cent.	4 0 0	4 0 9¾	4 1 2½	4 1 6	4 1 7¾
5 per cent.	5 0 0	*5 1 3	5 1 10¾	5 2 4	5 2 6½
6 per cent.	6 0 0	6 1 9¾	6 2 8¾	6 3 4	6 3 8¼
7 per cent.	7 0 0	7 2 5½	7 3 8¾	7 4 7	7 5 0¼
8 per cent.	8 0 0	8 3 2½	8 4 10½	8 6 0	8 6 7

* *Example.*—If a person receives interest half-yearly, after the *nominal* annual rate of 5 per cent., the actual interest derived by him by one year's investment is £5. 1s. 3d.

TABLE V.

Shewing the nominal *annual Rates of Interest paid* momently, *which are equivalent to rates paid at the* end *of each year.   Art. 6, Appendix.*

Yearly rate.	Corresponding momentaneous rate.		Yearly rate.	Corresponding momentaneous rate.	
		£. s. d.			£. s. d.
2 per cent.	£1.9802 or	1 19 7½	7 per cent.	£6.7658 or	6 15 4
3 ,,	2.9558	2 19 1½	8 ,,	7.6791	7 13 11¼
4 ,,	3.9220	3 18 5½	9 ,,	8.6177	8 12 4¼
5 ,,	4.8790	*4 17 7	10 ,,	9.5310	9 10 7½
6 ,,	5.8268	5 16 6¼			

* *Example.*—The amount to which a sum of money will accumulate in any number of years at *yearly* interest 5 per cent. is the same as the amount to which it would accumulate at *momentaneous* interest, after the nominal annual rate of 4l. 17s. 7d. per cent.

TABLE VI.

Shewing the Amount to which £1 will increase at Compound Interest, according as it is paid yearly, half-yearly, quarterly, or momently. [*See Table III.*]

Nominal rate of Interest.	Payable.	The Amount of £1 in			
		1 Year.	5 Years.	25 Years.	50 Years.
3 per cent.	yearly	1.03000	1.15927	2.09378	4.38391
	half-yearly	1.03022	1.16054	2.10524	4.43204
	quarterly	1.03034	1.16119	2.11108	4.45667
	momently	1.03045	1.16183	2.11700	4.48169
4 per cent.	yearly	1.04000	1.21665	2.66584	7.10668
	half-yearly	1.04040	1.21899	2.69159	7.24465
	quarterly	1.04060	1.22019	2.70481	7.31602
	momently	1.04081	1.22140	2.71828	7.38906
5 per cent.	yearly	1.05000	1.27628	3.38634	11.46740
	half-yearly	1.05062	1.28008	3.43711	11.81372
	quarterly	1.05095	1.28204	3.46340	11.99517
	momently	1.05127	1.28402	3.49034	12.18249
6 per cent.	yearly	1.06000	1.33823	4.29187	18.42015
	half-yearly	1.06090	1.34392	4.38391	19.21863
	quarterly	1.06136	1.34685	4.43204	19.64303
	momently	1.06184	1.34986	4.48169	20.08553
7 per cent.	yearly	1.07000	1.40255	5.42743	29.45703
	half-yearly	1.07122	1.41060	5.58493	31.19141
	quarterly	1.07186	1.41478	5.66816	32.12799
	momently	1.07251	1.41907	5.75460	33.11545
8 per cent.	yearly	1.08000	1.46933	6.84847	46.90161
	half-yearly	1.08160	1.48024	7.10668	50.50495
	quarterly	1.08243	1.48595	7.24465	52.48490
	momently	1.08329	1.49182	7.38906	54.59815

TABLE VII.

Time in which Money will double itself at Simple or Compound yearly Interest. (*See Arts.* 12—15, *in the Appendix for the theorem relative to the number* 70.)

Rate Per cent.		At Simple Interest.	At Compound Interest.		
		Years.	Years.	Years.	Days.
2		50.0000	35.00278878 =	35	2
2½		40.0000	28.07103453 =	28	26
3		33.3333	23.44977225 =	23	165
3½		28.5714	20.14879168 =	20	55
4	£1 or any	25.0000	17.67298769 =	17	246
4½	other sum	22.2222	15.74730184 =	15	272
5	will dou-	20.0000	14.20669908 =	14	76
6	ble itself	16.6666	11.89566105 =	11	327
7	in	14.2857	10.24476835 =	10	90
8		12.5000	9.00646834 =	9	3
9		11.1111	8.04323173 =	8	16
10		10.0000	7.27254090 =	7	100

TABLE VIII.

Showing the present Value of £1 payable at the end of any number of Years, at various Rates of Interest.

This Table will serve to determine the *present value* of shares in a Building Society, or the sum which must be given at once to obtain a *paid up* share, which is to be received at the end of a specified number of years.

Years.	3 per cent.	3¼ per cent.	3½ per cent.	3¾ per cent.	4 per cent.	4¼ per cent.	4½ per cent.	4¾ per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.
1	.9708	.9685	.9661	.9638	.9615	.9592	.9569	.9546	.9523	.9433	.9345	.9259
2	.9425	.9380	.9335	.9290	.9245	.9201	.9157	.9113	.9070	.8899	.8734	.8573
3	.9151	.9085	.9019	.8954	.8889	.8826	.8762	.8700	.8638	.8396	.8162	.7938
4	.8884	.8799	.8714	.8630	.8548	.8466	.8385	.8305	.8227	.7920	.7628	.7350
5	.8626	.8522	.8419	.8318	.8219	.8121	.8024	.7929	.7835	.7472	.7129	.6805
6	.8374	.8253	.8135	.8018	.7903	.7790	.7678	.7569	.7462	.7049	.6663	.6301
7	.8130	.7994	.7859	.7728	.7599	.7472	.7348	.7226	.7106	.6650	.6227	.5834
8	.7894	.7742	.7594	.7448	.7306	.7167	.7031	.6898	.6768	.6274	.5820	.5402
9	.7664	.7498	.7337	.7179	.7025	.6875	.6729	.6585	.6446	.5918	.5439	.5002
10	.7440	.7262	.7089	.6920	.6755	.6595	.6439	.6287	*.6139	.5583	.5083	.4631
11	.7224	.7034	.6849	.6670	.6495	.6326	.6161	.6002	.5846	.5267	.4750	.4288
12	.7013	.6812	.6617	.6428	.6245	.6068	.5896	.5729	.5568	.4969	.4440	.3971
13	.6809	.6598	.6394	.6196	.6005	.5821	.5642	.5470	.5303	.4688	.4149	.3676
14	.6611	.6399	.6177	.5972	.5774	.5583	.5399	.5222	.5050	.4423	.3878	.3404
15	.6418	.6189	.5968	.5756	.5552	.5356	.5167	.4985	.4810	.4172	.3624	.3152

* *Example.*—If a member of a Building Society desire to purchase by a single payment a share whose amount is £100, to be received at the end of 10 years, and the rate of interest be 5 per cent, he must pay £61.39 or £61. 7s. 11d. for the same; a modification of course being made in the case of *monthly* payments.

[*Refer to the Remarks No. 1, appended to Table III, for any time beyond 25 years.*]

TABLE IX.

Showing the Amount to which an Annuity of £1, paid at the end of each year, will accumulate at Compound Interest.

This Table will serve to determine the yearly subscription requisite to purchase an investing share in a Building Society.

Years.	3 per cent.	3¼ per cent.	3½ per cent.	3¾ per cent.	4 per cent.	4½ per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.	9 per cent.	10 per cent.
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	2.0300	2.0325	2.0350	2.0375	2.0400	2.0450	2.0500	2.0600	2.0700	2.0800	2.0900	2.1000
3	3.0909	3.0985	3.1062	3.1139	3.1216	3.1370	3.1525	3.1836	3.2149	3.2464	3.2781	3.3100
4	4.1836	4.1992	4.2149	4.2306	4.2464	4.2781	4.3101	4.3746	4.4399	4.5061	4.5731	4.6410
5	5.3091	5.3357	5.3624	5.3893	5.4163	5.4707	5.5256	5.6370	5.7507	5.8666	5.9847	6.1051
6	6.4684	6.5091	6.5501	6.5914	6.6329	6.7168	6.8019	6.9753	7.1532	7.3359	7.5233	7.7156
7	7.6624	7.7206	7.7794	7.8386	7.8982	8.0191	8.1420	8.3938	8.6540	8.9228	9.2004	9.4871
8	8.8923	8.9718	9.0516	9.1325	9.2142	9.3800	9.5491	9.8974	10.2598	10.6366	11.0284	11.4358
9	10.1591	10.2631	10.3684	10.4750	10.5827	10.8021	11.0265	11.4913	11.9779	12.4875	13.0210	13.5794
10	11.4638	11.5967	11.7313	11.8678	12.0061	12.2882	12.5778	13.1807	13.8164	14.4865	15.1929	15.9374
11	12.8077	12.9736	13.1419	13.3128	13.4863	13.8411	*14.2067	14.9716	15.7835	16.6454	17.5602	18.5311
12	14.1920	14.3952	14.6019	14.8121	15.0258	15.4640	15.9171	16.8699	17.8884	18.9771	20.1407	21.3842
13	15.6177	15.8631	16.1130	16.3675	16.6268	17.1599	17.7129	18.8821	20.1406	21.4952	22.9533	24.5227
14	17.0863	17.3786	17.6769	17.9813	18.2919	18.9321	19.5986	21.0150	22.5504	24.2149	26.0191	27.9749
15	18.5989	18.9434	19.2956	19.6556	20.0235	20.7840	21.5785	23.2759	25.1290	27.1521	29.3609	31.7724

[NOTE.—The above Table will also serve to determine the amount of an annuity paid at the *beginning* of each year.

For the amount of an annuity for *n* years paid } = } the amount of an annuity for (*n*+1) years
at the *beginning* of each year. from above table — 1.

* *Example.*—The amount of an Annuity of £1 at 5 per cent. for 10 years paid at the beginning of each year = £14.2067 — £1.
= £13.2067.]

TABLE X.

[See Remarks, No. 3., appended to Table III.]

Shewing the present Value of an Annuity of £1, paid at the end of each Year.

Years.	3 per cent.	3¼ per cent.	3½ per cent.	3¾ per cent.	4 per cent.	4½ per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.
1	.9708	.9685	.9661	.9638	.9615	.9569	.9523	.9433	.9345	.9259
2	1.9134	1.9065	1.8996	1.8928	1.8860	1.8726	1.8594	1.8333	1.8080	1.7832
3	2.8286	2.8150	2.8016	2.7883	2.7750	2.7489	2.7232	2.6730	2.6243	2.5770
4	3.7170	3.6949	3.6730	3.6513	3.6298	3.5875	3.5459	3.4651	3.3872	3.3121
5	4.5797	4.5471	4.5150	4.4832	4.4518	4.3899	4.3294	4.2123	4.1001	3.9927
6	5.4171	5.3725	5.3285	5.2850	5.2421	5.1578	5.0756	4.9173	4.7665	4.6228
7	6.2302	6.1720	6.1145	6.0578	6.0020	5.8927	5.7863	5.5823	5.3892	5.2063
8	7.0196	6.9462	6.8739	6.8027	6.7327	6.5958	6.4632	6.2097	5.9712	5.7466
9	7.7861	7.6961	7.6076	7.5207	7.4353	7.2687	*7.1078	6.8016	6.5152	6.2468
10	8.5302	8.4223	8.3166	8.2127	8.1108	7.9127	7.7217	7.3600	7.0235	6.7100
11	9.2526	9.1258	9.0015	8.8797	8.7604	8.5289	8.3064	7.8868	7.4986	7.1389
12	9.9540	9.8070	9.6633	9.5226	9.3850	9.1185	8.8632	8.3838	7.9426	7.5360
13	10.6349	10.4669	10.3027	10.1423	9.9856	9.6828	9.3935	8.8526	8.3576	7.9037
14	11.2960	11.1059	10.9205	10.7396	10.5631	10.2228	9.8989	9.2949	8.7454	8.2442
15	11.9379	11.7248	11.5174	11.3152	11.1183	10.7395	10.3796	9.7122	9.1079	8.5594

[Note.—The above Table will serve to determine the present value of an Annuity paid at the *beginning* of each year,

For, the present value of an annuity of £1, paid at the $\left.\begin{array}{l}\\\end{array}\right\} = \left\{\begin{array}{l}\\\end{array}\right.$ the present value of an annuity

beginning of each year, for *n* years   for $(n-1)$ years + 1.

* *Example.*—The present value at 5 per cent. of £1 a year paid at the beginning of each year for ten years= £7.1078 + £1.

= £8.1078]

TABLE XI.

Showing the Annuity which £1 will purchase for a given number of Years.

This Table will serve to determine the Annuity to be paid by a borrowing member of a Building Society in repayment of a given advance.

Years.	3 per cent.	4 per cent.	5 per cent.	6 per cent.	7 per cent.	8 per cent.	9 per cent.	10 per cent.
1	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000
2	.5226	.5302	.5378	.5454	.5531	.5608	.5685	.5762
3	.3535	.3603	.3672	.3741	.3811	.3880	.3951	.4021
4	.2690	.2755	.2820	.2886	.2952	.3019	.3087	.3155
5	.2184	.2246	.2310	.2374	.2439	.2505	.2571	.2638
6	.1846	.1908	.1970	.2034	.2098	.2163	.2229	.2296
7	.1605	.1666	.1728	.1791	.1856	.1921	.1987	.2054
8	.1425	.1485	.1547	.1610	.1675	.1740	.1807	.1874
9	.1284	.1345	.1407	.1470	.1535	.1601	.1668	.1736
10	.1172	.1233	.1295	.1359	*.1424	.1490	.1558	.1627
11	.1081	.1141	.1204	.1268	.1334	.1401	.1469	.1540
12	.1005	.1066	.1128	.1193	.1259	.1327	.1397	.1468
13	.0940	.1001	.1065	.1130	.1197	.1265	.1336	.1408
14	.0885	.0947	.1010	.1076	.1143	.1213	.1284	.1358
15	.0837	.0899	.0963	.1030	.1098	.1168	.1241	.1315

* *Example.*—If a member borrow £100 for 10 years to be repaid by equal instalments, including principal and interest, at 7 per cent., in that time, he must pay £14.24 or nearly £14. 5s. a year in repayment for the same.

☞ *From this Table may, also, be calculated the annual sinking fund to accumulate to £100 in any number of years. Ex: The sinking fund to produce £100 in 12 years at 5 per cent. is equal to £11.28, and less the interest, or to £6.28, which is £6. 5s. 8d. nearly. (See also Art. 33 Appendix).*

* TABLE XII.

Extract from the Tables of Hyperbolic Logarithms.

Number.	Logarithms.	Number.	Logarithms.
1.01	.0099503	2.00	.6931472
1.02	.0198026	3.00	1.0986123
1.03	.0295588	4.00	1.3862943
1.04	.0392207	5.00	1.6094379
1.05	.0487902	6.00	1.7917594
1.06	.0582689	7.00	1.9459101
1.07	.0676586	8.00	2.0794415
1.08	.0769610	9.00	2.1972245
1.09	.0861777	10.00	2.3025851
1.10	.0953102		

Rem.—Hyperbolic Logarithms can be deduced from the ordinary tables of Logarithms to the base 10, by multiplying the latter by Log_e 10 or 2.302851.

* See Callet's Logarithms.—*Firmin Didot, Paris.*

TABLE XIII.

Extract from the English Life Table, 5th Report of the Registrar General.

[*Interpolated by applying the differential Method to the Logarithms of the probability of living a year; in two series,—the first extending from 15 to 55 in the Table of Males and from 15 to 54 in the Table of Females, the second series from 56 and 55 to the end of life.*]

Age.	Living.	Males.	Females.	Age	Living.	Males.	Females.
0	100,000	51,274	48,726	35	57,173	28,868	28,305
1	85,369	43,104	42,265	40	53,824	27,145	26,679
2	80,102	40,388	39,714	45	50,300	25,311	24,989
3	77,392	39,018	38,374	50	46,620	23,377	23,243
4	75,539	38,064	37,475	55	42,812	21,361	21,451
5	74,201	37,385	36,816	60	37,998	18,808	19,190
6	73,154	36,843	36,311	65	31,854	15,590	16,264
7	72,320	36,411	35,909	70	24,532	11,824	12,708
8	71,644	36,065	35,579	75	16,659	7,868	8.791
9	71,081	35,787	35,294	80	9,382	4,316	5,066
10	70,612	35,564	35,048	85	4,010	1,786	2,224
15	68,628	34,574	34,054	90	1,150	492	658
20	66,061	33,324	32,737	95	188	77	111
25	63,296	31,958	31,338	100	13	5	8
30	60,333	30,473	29,860	105	.3	.1	.2

TABLE XIV.

Extract from the Tables of Rates of Mortality at Northampton, Carlisle, the Equitable Insurance Office, and according to the Observations of Des Parcieux.

Age.	Northampton Living.	Carlisle, Living.	Des Parcieux. Living.	Equit-able. Living.	Age	Northampton Living.	Carlisle Living.	Des Parcieux. Living.	Equit-able. Living
0	11650	10000			35	4010	5362	694	2374
1	8650	8461			40	3635	5075	657	2236
2	7283	7779			45	3248	4727	622	2093
3	6781	7274	1000		50	2857	4397	581	1937
4	6446	6998	970		55	2448	4073	526	1744
5	6249	6797	948		60	2038	3643	463	1524
6	6065	6676	930		65	1632	3018	395	1288
7	5925	6594	915		70	1232	2401	310	1028
8	5815	6536	902		75	832	1675	211	752
9	5735	6493	890		80	469	953	118	480
10	5675	6460	880	2844	85	186	445	48	224
15	5423	6300	848	2785	90	46	142	11	65
20	5132	6090	814	2705	95	4	30	0	9
25	4760	5879	774	2611	100		9		
30	4385	5642	734	2501					

TABLE XV.

Present Values of Annuities on Single Lives according to the Carlisle Table of Mortality.

(See Deposit Life Assurance Formulæ in Section 4, Appendix.)

Age.	3 per cent.	4 per cent.	Age.	3 per cent.	4 per cent.
0	17.320	14.28164	35	18.433	16.04123
1	20.085	16.55455	40	17.143	15.07363
2	21.501	17.72616	45	15.863	14.10460
3	22.683	18.71508	50	14.303	12.86902
4	23.285	19.23133	55	12.408	11.29961
5	23.693	19.59203	60	0.491	9.66333
6	23.846	19.74502	65	8.917	8.30719
7	23.867	19.79019	70	7.123	6.70936
8	23.801	19.76443	75	5.512	5 23901
9	23.677	19.69114	80	4.365	4.18289
10	23.512	19.58339	85	3.229	3.11515
15	22.582	18.95534	90	2.499	2.41621
20	21.694	18.36170	95	2.757	2.67433
25	20.665	17.64486	100	1.683	1.65282
30	19.556	16.85215			

THE END.

TREATISE

ON

FRIENDLY SOCIETIES,

CONTAINING

An Exposition of the True Law of Sickness,

WITH

RULES AND TABLES,

AND

**Remarks on the Extension of Industrial Life Assurance,
and on the Principles involved in the Valuation of Post Obits,
Reversions, and the
Liabilities of Friendly and other Assurance Societies.**

BY

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*Of the Inner Temple, Barrister-at-Law;
Formerly Fellow and Sadlerian Lecturer of Queens' College, Cambridge, &c.*

Tenth Edition, Enlarged.

NOTICE TO TENTH EDITION.

THE passing of the recent amending Act (21 and 22 Vict., c. 101), being the 18th of Friendly Society legislation, necessitates another Edition of this Treatise. The opportunity has been taken to insert a variety of new matter, relating to several subjects of importance, as follows :

1.—THE TRUE LAW OF SICKNESS or Inability to Labour prevailing among MEMBERS OF FRIENDLY SOCIETIES. (See p. 106—109, and Mathematical Appendix.)

2.—Deposit Tables for Savings Banks. (p. 145—160.)

3.—Observations on the Principles involved in *Valuations of the Affairs of Assurance Offices, and on Errors in Bonus Allotments.* (See Preliminary Remarks and Mathematical Appendix.)

4.—*On the Distinction between Moral and Mathematical Expectation in Probabilities.* (Appendix.)

5.—On the Valuation of Post Obits and Reversions (Appendix.)

3, PARLIAMENT STREET, LONDON,
    June, 1859.

ERRATA.

Division III.

P. xxxv. art. xxviii, line 10, for " 45," read " 50."

P. xxxvi, line 1 - - - - for " 65," read " 70."

    ,,   line 2 - - - - for " 44," read " 45."

P. 63 and 64 - - - - dele the asterisk in the numbering of the pages.

Appx. p. 46, line 21 - - for " *numbers*," read " *members*."

INDEX

TO

Division III.

PRELIMINARY REMARKS.

I.—The title of this Division (III.) indicates that it treats of two kindred subjects—*Friendly Societies* and *Industrial Assurance Societies*,—including under these designations the associations usually denominated Benefit and Odd Fellow Clubs. In this edition we have thought it desirable to review the various methods of Life Assurance in practice at the present time, while suggesting some *improvements that appear to have reasonable arguments for their adoption.—In that portion of the treatise which bears more particularly on Friendly Societies, we have supplied a model collection of rules suited for establishing them on a sound basis. We recommend the following general suggestions to persons engaged in the formation of new societies:—

General Suggestions.

1°.—No member of a Friendly Society should be allowed to insure for a larger sickness allowance per week than would equal *two-thirds* at most of his weekly earnings. A member has, otherwise, no interest in returning to his work, and retiring from the sick list. A declaration should also be required, stating whether he has effected sick assurances in any other Benefit Society.

2°.—The subscriptions of Honorary Members should be applied, partly to assist the fund for expenses, and partly to enable the society to offer an incentive to 'Benefit-members' to keep off the sick fund, by according them, out of the honorary fund, an allowance towards diminishing quinquennially their payments in proportion to the length of time that they have previously not been claimants.

3°.—The aggregate amount of *Sickness allowance* receivable by

* [See Part V. of Division I., or the *Treatise on Savings Banks*, for a plan for extending the operations of Life Assurance Societies and Friendly Societies, by the agency of Savings Banks, and for the establishment o a Government Life Office.]

any one person should be limited, but the members might have the privilege of re-entry, at the rates for their advanced ages.

4º.—The rate of sickness allowance might increase with the number of years the member has not been a claimant.

5º.—The *Widows' annuities* should be proportioned to the number of years' membership of the husband before death.

6º—In respect to Superannuation Allowances, we would remark that, unless Benefit Societies be placed under better management than, in the majority of instances, is at present the case, or indeed, unless they be constituted *Parish Friendly Societies*, as we have advocated in Art. 87, the members run considerable risk of never receiving the provisions for old age or chronic sickness, for which they have subscribed.   It is an open question, however, as to how the superannuation allowances should be secured.   Many advocate that they should be made a distinct matter from temporary or *Recoverable inability to labour*.   (See p. 99.)   We are inclined to think that it would be well if the ordinary tables were calculated to provide only for this latter risk; and that those members, who desire to have superannuation allowances, —that is, annuities to begin at a fixed age, or earlier in case of Irrecoverable chronic sickness—should pay for such additional benefits according to a distinct table : arrangements, in the case of small societies, being made for their underwriting such special benefits, either with the Government, or some stronger association that has a sufficient number of like cases to enable it to undertake the risk. *

7º.—*As to Arbitration.*—The rules should distinctly state the manner of settling disputes, for which the following clause may be adopted :—

" If any dispute shall arise between any member, or person

[* *In reference to this, the reader should peruse the admirable Lecture recently delivered by the learned Registrar, Mr. Tidd Pratt, which contains suggestions to promoters and managers of Friendly Societies that are entitled to the greatest weight, as being the result of long experience in the discharge of his onerous duties. Many also of great value will be found in the writings and lectures of Sir John S. Forbes, Bart., of Fettercairn, and the Rev. J. B. Owen, M.A, of London.*]

claiming under or on account of any member, or under the rules of the society, and the trustees, treasurer, or other officers of the society, or the committee thereof, it shall be referred to arbitration. In each case of dispute the complaining party, or some one appointed by him or her, shall name one arbitrator; and the secretary shall, on the part of the society, name another; and the two shall be the arbitrators to decide the matter in difference. If they agree in making an award their decision shall be final. In case they disagree, they shall make a statement in writing of the facts of the case, so far as they have been brought to their knowledge, or each arbitrator may make his own statement, and such statement or statements, shall be submitted to the Registrar of Friendly Societies in England for the time being, for his award thereon, and his decision shall, in such case, be final." *(See also p.* 112.*)*

8°.—*As to Periodical Investigations and Dissolutions.*—The affairs of every Friendly Society should be investigated at intervals of three or five years, so that the sufficiency of the rates, and the good working of the rules, may be tested from time to time. *(See page* 89.*)*

In case a dissolution should be deemed advisable or necessary, it can be effected ' by consent ' or compulsorily :—the first, under s. 13 of the Act of 1855, requires the consent of 5-6ths of the members (see p. 46, appx.); the second is applicable in case the Society should be deemed insolvent, when, under s. 8 of the Act of 1858, an application from 1-4th of the members for an Actuary's award of dissolution alone is necessary. Another course may be adopted, *viz.,* union with some more prosperous Society, under s. 14 of the Act of 1855.

II.—*The following Arrangements would go far to ensure adequate supervision* :—

1.—A central committee, consisting of men of experience, to be formed in the leading town, to whom should be confided the chief management of the society, the investment of its funds, and the determination, from time to time, of the risks to be incurred, claims to be discharged, &c.

2.—A sub-committee to be appointed in each district, for the purpose of administering the benefits of the society, exercising surveillance for the prevention of fraud (such as feigned prolongation of sickness, &c.), and the rejection of any persons not suited to become members of the society from their habits of life, state of health, morals, or otherwise.

3.—The sub-committee to consist of Benefit members, presided over by the clergyman of the parish, or some person of equal repute. The whole or part of the sub-committee might be elected, or, at least, nominated by the benefit members of the district.

4.—The sub-committee to superintend the receipt of the subscriptions of the local members, and to remit them (weekly) to the head quarters of the central committee of management.

5.—The risks insured in the branches under each class of benefits to be aggregated together, so as to afford one average risk for the whole society;—the subscriptions being paid into, and the losses being paid out of, separate funds for each class, as provided by the Act 18 and 19 Vic., c. 63, s. 25.

III.—Numerous collateral advantages, which it is unnecessary to enlarge upon in this place, would accrue from the system of central supervision we recommend. It would check any want of firmness, on the part of the local committee or agents, arising from the circumstance of their being tradesmen with whom the members deal.

An objection is made, " That the great extent of such societies would prevent adequate supervision and tend to the undue increase of claims." We think, on the contrary, that it furnishes the main element of security. It is only by a large average, that aberrations in one district, in excess of the calculated laws of mortality or sickness, can be expected to be counterbalanced by diminutions of loss in other districts. If each district bore its own risk, and they were not thrown into a common average, one branch might be insolvent, whilst another might be prosperous beyond expectation. The necessity of continuous investment (the scope for which has been very much extended by the recent Acts) affords an additional reason

why societies should be large enough to invest their surplus receipts without delay, and at the same time on advantageous terms, through being able to procure the best financial advice.

IV.—*As to Audit of Friendly Societies.*—The accounts of a benefit society can only be audited by persons of experience, and it frequently happens that they present as many points of difficulty, and give as much trouble as the accounts of a large office. In any future legislation on the subject, therefore, it should be provided that every society registered under the Act should appoint an Auditor, being a professional Accountant, and enrol his name with the Registrar of Friendly Societies.

V.—*As to a Permanent Guarantee Fund.*—In reference to the clauses (see p. 81) proposed in 1854, at our request, by Mr. Seymour Fitzgerald, M.P., we would remark that the managers of Benefit Societies too much neglect to set apart a sufficient sum to form a Permanent Guarantee Fund. This fund (even in a large society), if not permanent, should, at all events, be established on such a principle, that it would exist till after the probable average lifetime of the younger members of the society, that is, some forty years. In the majority of existing Benefit Societies of many years standing, those members, who entered young and are now become old, find the funds exhausted (as in the case of the Mutual Society in Threadneedle-street,) by the payments which have been made to the members, who have gone before them and were older than they were at the time the societies were founded. In the case of any society, established in the present day, the promoters would undertake a certain amount of moral responsibility; and its failure would produce infinitely more mischief, and so do more to check provident habits amongst the industrious classes at large (apart from the monetary loss to its members) than the bankruptcy of a thousand of the ordinary benefit clubs. In such a society, therefore, a Guarantee fund is absolutely necessary, and should at first consist of the contributions of honorary members, invested and set apart for the purpose. Even should subsequent periodical investigation

into the affairs of the association show, during the first twenty
or thirty years, that it is experiencing less losses than were antici-
pated by the tables, still fluctuations and aberrations may occur,
and a permanent guarantee fund should be kept up.

VI.—It is worthy of notice by all who desire—" to relieve the
physical wants and necessities of persons in poor circumstances,
or to improve the *dwellings of the labouring classes," &c.,—that
under the 11th section of the Friendly Societies Act, 1855,
societies for such purposes may be registered, when the following
privileges and regulations will be extended to them :—

1. Buildings for holding their meetings may be purchased or
    leased, (sec. 16.)
2. The appointment of trustees by the members, and registration
    of such appointment, the treasurer to be trustee, should no
    other be elected, (sec. 17.)
3. The property of the society to be vested in the trustees
    without assignment, (sec. 18.)
4. The trustees for the time being may sue and be sued in the
    name of the society, (sec. 19.)
5. Trustees not to be liable to make up any deficiency in the
    funds, (sec. 20.)
6. The treasurer to give security for the due performance of his
    duties, (sec. 21.)
7. The treasurer to render accounts to the trustees when called
    upon, (sec. 22.)
8. Embezzlement or Fraud may be punished by summary process,
    (sec. 24.)
9. The rules to be conclusive as to the manner of determining
    disputes, (sec. 40.)
10. Disputes (when not provided for in the rules) to be settled in
    the County Court, (sec. 41.)
11. The order of the Court may be enforced by a pecuniary
    penalty, (sec. 42.)
12. The Lord Chancellor may make orders to regulate the pro-
    ceedings, so as to render them as summary and as inexpensive
    as conveniently may be, (sec. 43.)

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* [In the Appendix to Div. I, or the Treatise on Savings Banks, will be
found a full inquiry into the question of the Improvement of Industrial Dwel-
lings. See also Part II of Div. II, or the Treatise on Building Societies.]

INDUSTRIAL LIFE ASSURANCE SOCIETIES.

I.—WITH regard to *Assurance Societies*, much has been said as to the injurious effect of so many having been formed of late years, when so few really transact any large amount of business. But the mischief, if any, is confined to those societies, the non-success of which is attributable to their having been founded, either without a good connection, or with insufficient paid-up capital to defray the expenses, that are necessary to establish properly any institution of importance. All persons, whose opinions on assurance matters are worth noticing, are agreed that the field for business, as yet unworked, is so vast and increasing as practically to leave room for many more companies than now exist; allowance being made for the great number that have lately amalgamated; the more so, as scarcely any of those in operation seek to do business with the *Industrious classes* or the smaller kind of tradesmen. Moreover, it is to be remembered that not only are the numbers of the population at large yearly increasing, but the materials for assurance are themselves gradually changing, and will do so as long as the world lasts; for each year new lives are born ; new lives come of age ; new lives have commercial transactions, or marry, and require policies of assurance.

II.—That altogether scarcely a quarter of a million of persons should have been assured in the United Kingdom,

—when the population is at the present time near 30 mil-
lions, and is increasing at the rate of more *than 250,000
lives a year—is conclusive evidence, either that the public do
not yet fully understand the advantages arising from the
assurance system, or that the majority of existing companies,
from the manner in which they conduct their business, do not
meet the practical requirements of the people.†

A great, though gradual, increase is, however, noticeable
in the number of persons assured during the last 10 years,
more particularly by those institutions which are usually de-
nominated class offices ; and this increase leads naturally to
the expectation, that tens of thousands, before long, will avail
themselves of life assurance, where hundreds only do so at
present.   We concur, also, with an opinion, recently expressed,
that there are many class interests, as yet not addressed, which
future class offices will succeed in enlisting on the side of the
assurance principle.

III.—*As to the prosperity of Assurance Offices.*—The
position of the majority of existing Assurance societies
is, indeed, satisfactory, if they be regarded only in their
character as *commercial associations.*   It is certain that they
have met with unexampled prosperity from the precaution,
which has been exercised, of charging a considerable margin
in favour of the society over the mathematical value of the
risk attending the assurance of any life, and from the profitable
and judicious manner in which the premiums, in general, are
invested.   Hence it has followed as the result of the experience
of upwards of a century and a-half, that no commercial under-
taking has surpassed a soundly constituted assurance office in
the steadiness with which its prosperity and consequent profit
have increased, where judgment and care have been exercised
in the management.

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* See further on as to the numbers of the population, (art. xxxiv-xxxvii.)
† [*See Arts.* 11 *and* 12. *p.* 14, *on the practical and legal impediments to
Assurance.*]

This may be regarded, not as the result of accident, but as verifying the exactness of the limits, within which events may be estimated by the Laws of "Average," as likely to occur. In fact, the remarkable manner, in which the happening of such events has coincided with the calculated probability of their occurrence, has proved that there is less tendency to fluctuation in the profits of an assurance society than in those of any other commercial enterprise.

IV.—Such is the *commercial* aspect of the better class of offices; but if they be measured by the extent of good they have done to the community at large, or by the number of families, whose pecuniary difficulties or suffering they have contributed to alleviate, then (remembering the millions, in the United Kingdom alone, who have lived and died since an assurance office was first founded) it must be acknowledged that the number of persons, who have been benefited, is limited indeed, and that *hundreds* only have been assisted where *tens of thousands* have suffered. Hence so far from there being ground for no greater exertion being made to extend the operations of assurance companies—so far from there being any reason that the public should rest satisfied with the activity of the majority of existing associations—it must be acknowledged, that they have failed to a considerable extent in their mission.

The fact is, the managers of insurance companies, in the greater part of their publications in support of life assurance, have addressed their efforts mainly to making an impression upon the minds of the middle and higher classes, and even there they have only partially succeeded in their object. The humble operatives, whose circumstances are more precarious, have not been addressed with the same anxiety to produce conviction. To make life assurance universal, there must first be removed, as far as the principle of the system will allow, many imperfections in the practice upon which it is applied. Societies

must cease to consider that the industrial portion of the community are, as a matter of course, to leave their children without any provision. They must induce the hardworking mechanic, the small tradesman, and others in a similar position, to give the subject more careful consideration, as one coming home to themselves, and affording benefits within the reach of their narrow resources.

V.—*As to the failure of Assurance Offices.*—Although, as a whole, so many assurance societies appear at present to have been successful, and although it is undoubtedly true that the principle of Life Assurance is still very far from having received all the extension of which it is capable, yet the experience of the last few years has strikingly shown, that a large number of offices have not been able to do sufficient business to pay expenses or to form Averages of lives. This is confirmed by the fact, that in the three years, 1856 to 1858, 88 offices have ceased to exist, 5 have amalgamated, 69 have transferred their business, and 20 have had recourse to a winding up in the Court of Chancery.—*(v. that useful Annual the Post Magazine Almanack.)*

VI.—Now, in order that a Life Assurance Society may be successful,—that is, may fulfil its promise of paying to the representatives of every life, on decease, the amount of the policy without drawing from any other fund than the premiums received from assurers and the interest obtained on the same,—various circumstances, it is evident, must concur.* These are :—

(1.) That the premiums of each member be sufficient to pay his share of the expenses of the Institution, after setting aside the amount required to be accumulated according to the law of mortality.

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* [On this head the reader should consult the writings of Messrs. Peter Hardy, F R.S., Samuel Brown, Sprague, &c., which bear the stamp of refined judgment confirmed by experience.]

(2.) That the law of mortality shall accurately represent—or, at least, not exaggerate—the probable future existence of the lives assured.

(3.) That there be a sufficient number of Assurers in the Society to form an Average, and ensure the proper distribution of risks.

(4.) That the premiums be invested on such securities as shall produce at least an equal amount of interest to that involved in the tables, without danger of loss from depreciation in value when they come to be realized.

VII.—*As to the Causes of Failure.*—The preceding remarks shew, that it is not sufficient for an Assurance Society, during the early years of its existence, to pay its way—that is to say, merely be able to meet current claims by death, and expenses, or even unforeseen contingencies :—it is, also, necessary that a sufficient portion of its Premium Income should be set aside to accumulate* for the claims that are certain to arise in the future. The want of such accumulation has caused the insolvency of several old Assurance Companies, (recently made known), and would be attended with fatal results in a Mutual Society, where there are no proprietors to fall back upon, as there were in the instances referred to.

Life Assurance differs from other classes of risk in this circumstance :—that, sooner or later, all the assured must die ; and with each year, the time is brought nearer when their claims will have to be paid.

VIII.—*As to the Equitable Society.*—The anticipations and arguments in favour of probable prosperity in modern Assurance Offices are generally deduced from that of the

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* [*Directors of Companies too often forget, that it is only by such a process of accumulation at compound interest, that a small annual payment of £2. 4s. 8d. at age 30 can be made to pay £100 at death.*—See page 51.]

" Equitable Society," under mistaken views of the causes
that operated in its favour, which it may be advantageous
to consider.

In the year 1762, when the Equitable Society was first
established, (says a writer, who appears to be familiar with
the history of that Institution), it was considered necessary
by its projectors, so limited was their knowledge of the sub-
ject, to graduate the premiums on a very expensive scale.
The Equitable Society was, in truth, the first institution for
Life Assurance which attempted, what was then considered,
the dangerous novelty of graduating its premiums according
to the ages of the insured. It was, therefore, natural, that
those, who were trying a new experiment for the first time,
should endeavour to guard against the danger, which might
arise to the infant institution from too great a degree of
liberality in its charges ; and we cannot, at the present time,
sufficiently admire the prudence of that determination. It
was a good example, but indifferently followed by its many
successors.

The table of mortality, from which the early premiums
of the Equitable Society were deduced, was one formed from
the mortality returns of the city of London, during a period
when that mortality was nearly equal to what it had been
during the continuance of the plague. In consequence of
these very high premiums, and of other circumstances here-
after to be adverted to, the Society prospered so greatly in
its pecuniary affairs that in the year 1781, on the advice of
Dr. Price, it was thought safe to reduce its rates. On this
occasion the now well-known table of mortality, called the
Northampton Table, was adopted ; but even then, with a
safety charge in addition thereto of £15 per cent. In the
year 1785 this latter charge was finally removed, and the
Northampton Table, with a computation of interest at the
rate of £3 per cent per annum has, since that time, been the
standard table of the Equitable Society.

The success met with by this Society, and the wealth it realized, led many to suppose that its prosperity was mainly to be attributed to the excess of its premium charges. In reality, however, it was due to a combination of circumstances, which it is extremely improbable will ever occur again. One of the most important is the increase, which the value of its funded property received from the great advance that some years ago took place in the price of stocks, tending towards doubling the value of the capital of the Society. Much of that capital was realized and invested at a time when £100 Consolidated Stock was purchaseable for less than £60, while the price of the same amount of stock, for some years past, has equalled and exceeded £90.

Another source of very considerable profit to the Equitable Society was the careless abandonment, by the holders, of its early policies; a system which continued to favour the society for many years. During the infancy of Life Assurance, very few policies were effected excepting for temporary purposes, and as soon as the object was answered, the policy was abandoned without any price for its surrender being required, or allowed by the society.

This practice became a fruitful source of profit to the institution, until not many years ago, when assurance societies, under the influence of competition, discovered it to be judicious and right to offer to purchase back policies for which assurers had no longer occasion ; so that, at the present time, these securities have become very valuable and find ready purchasers in the market.

IX.—*The Dangers of Life Assurance.*—The author of " Life Assurance, its Schemes and Difficulties," who furnishes these particulars of the Equitable, further observes that, although public failures amongst societies for life assurance are, comparatively speaking, of rare occurrence, yet the covert bankrupt state of such institutions ought in reality to be more vigilantly

watched for, than the open relinquishment of business. By the latter course assurers are at once placed upon their guard; *but against the undetected poverty of a necessitous institution it is difficult to be on the alert.* The public are not generally aware, that the business of life assurance is so peculiar that a society may, to an inexperienced eye, be apparently in a flourishing condition, and actually adding every year considerable sums to its capital, although *proceeding steadily towards eventual insolvency, no less real, because it does not apparently suspend the progress of the society.*

During a long and improvident infancy, the Directors may have so infringed upon the Premium fund, that, without its being exhausted, it may be insufficient, in the Society's maturity, to provide against the inevitable increase in the number of the claimants through death among the policyholders. Meantime the Assurers continue sinking their premiums in blind security, until, too late, the reality of the case becomes known.

An assurer in a Life Office is, in fact, tied for life to the institution of which he first becomes a member, unless he discover the state of its affairs very speedily ; for otherwise he cannot, without considerable loss, recede from the Society ; neither can he recover back that youth, health, and activity, he possessed when he first entered it, nor the savings of his life which he finds he has uselessly expended ; meantime, age has advanced with him, his health has probably become impaired, and no other Society would receive him, without such a considerable advance in his premiums, as, perhaps, he may be ill able to afford.

X.—The following are the principal *Causes,* capable of remedy, which have brought various Societies to insolvency, and may, unless attended to, lead others to the same fate :—

1. *Excessive expenditure.*
2. *Too low a scale of Premiums.*

3. *Excessive Bonuses.*

As regards the first, but few societies can continue a system of expenditure disproportionate to their income, without soon discovering the error of their ways, and either adopting a more reasonable system or having to make arrangements for the transfer of their business to some other society or for being wound up by the Court. That the expenditure is excessive would, in fact, be found out from the impossibility, after a very few years, of continuing it ; hence the loss to the Assurers, or to the Company, cannot be so serious in its character as that attending the other two causes.

The evil produced by *Inadequate rates* is not, indeed, easily detected, as many years may elapse before an actual deficiency in the assets is discovered, unless a valuation be made by some one competent to form a sound opinion on the subject.

Many Boards of Directors are in the habit of dispensing with such valuations, too frequently contenting themselves with estimates made by subordinate officials, naturally ready to have faith in a favourable view of the concern, from which they derive their means of existence.

XI.—*As to Excessive Bonuses.*—The attraction of low rates is resorted to by a few offices for the purpose of obtaining business ; and it is among the most injurious held out to the public. To this reduction in the annual premiums, at starting, are not unfrequently added foolish promises of *large Bonuses.* The incompatibility of the two advantages does not deter parties desiring to insure; although, in many instances, it is apparent that the policy-holders can never receive even the amount of their policies, while in others, it is still more evident that the *Bonuses promised can never be realized.*

XII.—To this highly mischievous system, we would urge

the special attention of our readers ; for, under delusive notions of profit, Bonuses are being frequently declared, which neither the experience of the past operations of the society, nor a judicious estimate of the contingencies affecting the future would justify.   Indeed estimates of future losses, based on results of past experience and observation, cannot without reserve be relied upon for purposes of profit division.

The Bonus system was begun, not very many years ago, by one or two of the older offices, which, perhaps, had realised profits from a combination of peculiar causes, that do not now exist and are not likely ever again to arise. The plan, being found attractive, was adopted by other societies, sometimes without actual inconvenience ; but, under the influence of unhealthy competition, various respectable offices have taken to declaring bonuses so large as to be obviously not justified by their financial condition, nor consistent with security.

There is no branch of the subject so difficult or so little understood, as that relating to the principles upon which Profits should be estimated and divided.   Many even of the so-termed *old* assurance companies are allotting bonuses, not out of the surplus actually realised in the period anterior to the division of the same, but out of the *prospective* profit, assumed as likely to attend the future Income of the society from the policies already effected.

That income (and consequently the *profit margin* in it) is treated as already realised, without regard to the probability of a portion of the policies being discontinued.

We have recently had occasion to examine the affairs of two companies, established more than 30 years ago, and found it necessary to recommend, in each case, the immediate Transfer of the business to some more prosperous society, in consequence of the insufficiency of Assets, caused to a very large extent by the imaginary profits, that had been divided

in* past years.   We found that, even though such Transfers
would be attended with some sacrifice on the part of the
shareholders, it was preferable to the increasing losses to be
anticipated in the future.

XIII.—*As to Bonuses.*—The only case, in which the pay-
ment of a Bonus to an assurer is really proper or desirable, is
where he has paid up in *office* premiums, with interest, the
amount of his policy.   It is obvious, that the assurer, who
dies before he has paid in that amount, can have no right to
complain, as he, at least, receives more from the society than
he has contributed to it; and if he averred, that the rate of
premium charged exceeded the mathematical measurement of
the contingency, the answer should be, that such margin is
added partly to pay expenses, and partly to form a †fund
not only for future contingencies, but, also, as a means of
compensating by Bonuses those subscribers, whose payments
may eventually exceed the pecuniary benefit they have assured
for.   There is something absurd in the prevalent system, by
which we see, every day, cases of assurers, who, entering a
society at an age when they are calculated as likely to live a
considerable number of years, are charged in consequence but
a small premium of £2 or £3 per cent. yet, on dying pre-
maturely, leave to their families not only the amount of the
policy, but a goodly sum in Bonus, out of profits, that have
arisen from the subscriptions of other members, and to which
they, by dying, cannot by any possibility have a fair claim.   A
case occurs to our mind of a gentleman, who insured in an
office in the month of April 1845, for £500, at an annual
premium of £11, and was agreeably astonished to receive a

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* See a curious illustration of such errors further on.—Art. xix.

† [*In fact, some portion of the margin is added for the* 'moral expectation,'
that in each single case the estimate made of the 'mathematical expectation'
may prove insufficient.]—(*See chapter in the Appendix on this subject.*)

circular in May of the same year, informing him that, by his
payment, he had contributed to the profits of the society to
such an extent that they were enabled to declare him a bonus
of £10. 15*s*!

An assurance society may have made profits on the aggre-
gate of its transactions without a particular member being in
a position to say that he ought to receive a bonus ; for if the
question be asked, which members are entitled to allowances
on account of profit, the answer can only be—those, who, in
the greatest degree, have contributed to the prosperity of the
association, and have not made it a loser by the contingencies
of their own existence.

If things be called by their right names, and the word "profit"
be used in its ordinary sense, nothing could be more untrue
than that the new member, of the society we have referred to,
was entitled to the bonus allotted to him : the true fact was,
that his policy having been effected just within the close of
the period of a Bonus Division, and a valuation of the society's
affairs, about that time, having probably shewn profits on the
aggregate, the new member was presented with a Bonus that
previous Assurers had contributed to create.   No stronger
illustration could be required of the impropriety of the present
system ; and much would be done to prevent the bankruptcy
of Assurance Offices, and to place them on a sound footing, if it
were put an end to.

XIV.—To resume, then, when a Valuation, that has been
made of the affairs of a society, shows a Balance of Assets over
estimated liabilities, the rateable proportion, that belongs to
all policies which have not been *paid up*, should be carried to
the Guarantee Fund.   As soon as such policies have ceased
to exist, or have attained the required condition, the reserves
which, at various times have been made for them, may be
removed from the Guarantee Fund, and made available for
division by way of Bonus.   Those, that die too soon ought

to be content with their representatives being paid the amount of their assurances: those that live beyond would receive Bonuses out of the reserves in the Guarantee Fund, as a compensation for paying for a longer term.

The above principle is eminently conducive to the *safety* of an assurance office ; for all Valuations are but estimates of probabilities of the duration of lives, and although, *mathematically* speaking, from Tables of Mortality, a profit may be shown, yet there is a *moral* chance of loss by aberration, which requires a society to see a large portion of the existence of a group of lives out, before it can actually *pay away* profits. It cannot by anticipation be secured that the majority of them will live up to, or over, the average expected term, or that the present profit may not be neutralized by future loss, as was the case with the two societies referred to in Art. xii.

This plan would practically be, in the long run, more beneficial even to the assurers, as a smaller Guarantee Fund would in the aggregate be required, since the Bonuses on the policies, that have ceased before their time, would merge into the general profits, and be improved with the other investments. The shares of those, who survive, would be very much larger than under the ordinary system of allotment in practice, whether applied in the form of a reversionary sum payable at death, or to the extinction of premium.

In the Mathematical Appendix at the end will be found an outline of various modes, in which Bonuses might be allotted.

XV.—*As to Increasing Bonuses.*—If the plan above recommended were objected to, as deferring too long the gratification of the eager desire of assurers to participate in the profits of a society, we would suggest the following method of apportionment, as about the best to be adopted, *viz :*—To convert the estimated present share of an assurer, in the profit shewn in the balance sheet at any valuation period, into an equivalent *Increasing Reversionary Bonus*, payable at death,

proportioned to the number of years he survive the allotment, instead of a *Fixed* reversionary sum.   The calculation would be as easy as in the method at present practised.   It would be simply necessary to divide each assurer's share by the value of an increasing assurance of £1, instead of by the value of a fixed assurance of £1.   In like manner, if preferred, there might be allotted, instead, an *increasing reduction of premium*, for which the only change in the calculation would be the division by the value of an *increasing* annuity *due* instead of by the value of a *constant* annuity *due* of £1.   [*See the Appendix for the Formulæ.*]

XVI.—*As to a Valuation of the Affairs of a Society.*— To appreciate thoroughly the error of the Bonus System, it is well to remember that the valuation of the affairs of a Life Assurance Company is but the aggregate of the valuations of each policy.   It may be made either in reference to full office premiums, *i.e.*, the premiums actually being paid, or to net premiums.

1. If by *full office* premiums—the result produced will represent the present value of all that will, by the end of life, be obtained by the office from the policy, as compared with the ultimate payment of the amount assured at death.

2. The result of such a valuation will, therefore, contain not only any profit that may have been realized in the past, but will absorb all allowance for future expenses, profits and contingencies, indeed all that can possibly be afterwards realized on the policies, except from circumstances not subject to calculation—that is to say, not involved in the loading on the premium, and which might arise from the lapsing of policies

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* [In the Deposit Tables further on, we have given a new Table, by which an assurer is *guaranteed* an increasing Bonus for every year of his life, in the form of an increasing Reduction of Premiums, and of a Deferred Annuity after the premium is extinquished.   See p. 159.]

or an unusually high rate of interest obtained on the Society's Investments, &c.

By way of example :

If the present value of the future premiums be shown to be £60,000, and the margin was 20 per cent. on the net premiums at the original ages, then there would be £10,000 not yet realised of any surplus of assets that may be shewn in the balance sheet.

3. As long as *a Division of Profits*, by way of Bonus, is not contemplated, no inconvenience can arise from a valuation by full premiums ; but, if a division be intended,—as it ought only to be of the profits actually realised up to the time of valuation from the *past* payments of the assurers,—the valuation must be so made as to exclude all profit obtainable in after years from their *future* payments.

4. For this purpose, it is simply necessary to ascertain the state of the society's clear undoubted assets remaining, out of the *past payments* and *investments*, at the time of the valuation ; (all claims up to that time having been paid or provided for), and to deduct, therefrom, such proportion of the back premiums as, by the net Tables of Mortality used as the basis, it would be necessary that the society should have in hand, with compound interest thereon, towards the ultimate realization of the policies.

Now this is exactly equal to their values estimated, with regard to the future, by *net* premiums. Hence, *a valuation must be made by net premiums, when it is desired to confine the Division of Bonus to profits arising from* the past receipts and investments *of the society, up to the date of the valuation.*— (See Appendix).

XVII.—This distinction has, unfortunately, in many cases been overlooked ; and, by the aid of Valuations made on the principle of *full office* premiums, Bonuses have been declared out of supposed profits, which, so far from having been actually

realised, absorb a considerable portion of the margin on the future Income. In so doing, the probable lapsing of the policies is too frequently neglected.—In fact, an investigation of the *past*, alone, shows for what the assurer is creditor on the society. The ceased policies are, thus, no longer represented as claimants on the funds; and the profit or loss that has accrued on them, produces an excess or deficiency in the general assets in hand.

If previous allotments have been made, they would have to be provided for by placing on the liability side of the account an increased proportion of the net value of the policy.

XVIII.—Whatever profits are shown in a Balance sheet, they will have arisen mainly from the following sources :—

1º· The *margin* or loading charged in the premiums over the net tabular rates.

2º· The *realization of a higher rate of interest* from the past investments, than was assumed in calculating the tables of premium.

3º· The *lapsing of the Policies*, or the surrender of them on terms favourable to the office.

4º The *selection of lives*, by which the deaths do not usually occur, during the earlier years of a set of assurances, to the extent allowed for in the tables of mortality, which are based on the experience of a mixed community.

Although the valuation by net premiums would diminish the apparently favourable present aspect of the contracts, yet a margin should be found, in the society's funds, available for Bonus reserves, if the past receipts have not been squandered, but solely applied to pay claims not exceeding the originally anticipated extent and a moderate rate of expenditure; provided, of course, that the balance has been duly invested at interest, without delay or other loss on that head.

XIX.—The following is an example, given by an experienced

Actuary, of the fatal results, in a very old office, of treating as realised profits the present value of the margin in the office premiums receivable in the future :—

"In the year 18—, the directors of the society declared a Bonus of some £300,000, no doubt imagining that the state of their finances fully warranted them in doing so: the account of the state, however, was not forthcoming afterwards, when another investigation was made anew under the auspices of regularly appointed Examiners, who reported that the Surplus fund of the society appeared to be only £44,469. 2s. 8d.,

| viz., | Assets | . | . | £3,053,069. 8s. 7d. |
| | Liabilities | | . | £3,008,600. 5s. 11d. |

and that the present value, at the second investigation, of the old bonus declared, was no less than £170,529. 4s. 11d,—nearly four times the whole surplus. By the declaration of bonus in 18—, therefore, the members were actually induced to draw upon the subsequent transactions of the society to the extent of £126,060 ! Nor was this all :—the valuation of the Examiners on the second occasion bears internal evidence of containing the whole future profits to be expected from the older policies existing since 18—; and thus the Declaration of Bonus, besides absorbing the whole future profits of the class who were to draw it, made off with an immense sum out of the contributions of expected members and with everything in the shape of guarantee fund. The effect of this on the future affairs of the society is just what might have been anticipated : for we find that, seven years afterwards, the state of matters, according to the report of the same Examiners, stood thus :—

Assets	.	.	£3,780,927. 2s. 2d.
Liabilities		.	£3,765,530. 6s. 1d.
Surplus			£15,396. 16s. 1d.

in which surplus was included the then present value of the whole profits to be expected from the policies current at that date ; so that, besides the profit actually received between the two valuations, the entire profits on the transactions current at the latter date, and all previous accumulations, have been absorbed by this Bonus ;—for the trifling surplus of £15,400 may be disregarded. Were the *yet unrealized* profits (dependent on the margin of premiums receivable in the future) to be struck off, a very large Deficit would make its appearance, instead of a surplus of £15,400.

"No one would accuse the manager and directors of this society in 18— of intentional inequity ; there can be no doubt that they acted conscientiously according to their ideas and information ; yet no one can deny that they committed a very serious error, and that, by holding out this large bonus, they allowed new members to become bound for, and eventually to pay it."

Another eminent Actuary, Mr. Higham, remarks with humour, that, in offices which estimate future profits as if they were present assets, not only is the want of prudence to be deplored, but also the objectionable tendency of a system, which "attracts customers by the display of an alleged unappropriated surplus, —just as the countryman is led, by the exhibition of what he takes to be a roll of genuine notes, to conclude that he cannot do better than place his watch in the keeping of the owner of such unbounded wealth."

XX.—The following Table exhibits the extent of the error committed when the premiums paid are represented as creating large profits :—

TABLE,

Showing the amount that a net Annual Premium of £1 will assure *at the death of a person of any given age*; or, the amount to which an Annuity *due* of £1 will accumulate by the end of the year of his death. (3 per cent. interest, English Life Table, No. 2.)

Age.	Amount.	Age.	Amount.	Age.	Amount.	Age.	Amount.
0	£43.901	23	£58.739	46	£29 643	69	£10 430
1	64.304	24	57.316	47	28.578	70	9.899
2	75.119	25	55.904	48	27.530	71	9.391
3	80.976	26	54 505	49	26.499	72	8.906
4	84.408	27	53.119	50	25 484	73	8.444
5	86.263	28	51.745	51	24 486	74	8.003
6	86.735	29	50.385	52	23.502	75	7.584
7	86.157	30	49.037	53	22.533	76	7.186
8	85.152	31	47.704	54	21 577	77	6.809
9	83.719	32	46.385	55	20.635	78	6.451
10	82.042	33	45.081	56	19.704	79	6.113
11	80.082	34	43.792	57	18.794	80	5.794
12	77.959	35	42.519	58	17.928	81	5.493
13	75.831	*36	41 262	59	17.102	82	5.208
14	73.705	37	40.021	60	16 310	83	4.941
15	71.759	38	38.798	61	15.550	84	4.689
16	69.708	39	37.592	62	14.820	85	4.452
17	67.810	40	36 403	63	14.117	86	4.229
18	66.099	41	35.232	64	13.441	87	4.020
19	64.564	42	34.078	65	12.790	88	3.824
20	63.087	43	32.943	66	12.164	89	3.640
21	61.625	44	31.825	67	11.562	90	3.467
22	60.176	45	30.725	68	10.984		

* EXAMPLE.—Suppose a Profit Policy for £1000, to be taken out at age 30, at a Premium of £24. 1s. 8d. a year (Table II., p. 51) : then, at age 36, the net Premium, required to meet the risk upon the life, will exceed the full office Premium.

N.B.—The reciprocal of the figures in the above Table is the Net annual premium to assure £1, payable at death.

This Table will, also, serve as a guide to the Free Policy which might be granted instead of a Cash Surrender Value,—

By the following Rule : Multiply the office premium, being paid under the Policy, by the value given in the above Table at the present age of the life, and deduct the result from the amount assured.—Thus, for a *non-profit* Policy of £1000 taken out at age 30, at an annual premium of £22. 6s 8d., after ten years existence a Free Policy of £187 might be granted : and, on such an assurance, it would *never be safe* to give the privilege which has been held forth by some offices, of a Free Reversionary Policy equal to the amount of premiums paid ;—while on a non-profit Policy for £1000 taken out at age 20, at an annual premium of £17. 1s. 8d., it would be in favour of the office if the Policy were dropped at any time after more than 12 or less than 46 years' duration.

XXI.—*As to the Selection of Lives.*—With respect to the *Selection of Lives*, Mr. Milne has justly remarked :—"Although the members, when they first enter, are select lives, they are not, even then, so much better than the common average as many persons suppose ; for the more precarious a life is, the stronger is the inducement for parties interested in its continuance to get it assured, so that bad risks are frequently offered and escape detection."   Dr. Farr states, that 27 men in 1000, between the ages of 20 and 60, are suffering from some kind of disease or other ; and that consumption, the most common fatal disease, lasts on an average two years :—so that selection will only diminish the mortality for the first year, or two, or three, or four, years, subsequent to its exercise, and is of greater value in reference to older lives than to young ones.

XXII.—*Respecting Amalgamations.*—In consequence of a great number of Assurance Companies having been formed, the majority of which never had any chance of doing a sufficiently extensive business to make their operations profitable, a proper desire has, of late, arisen for one society to amalgamate with another ; such amalgamations being virtually, however, a transfer of business from the weaker to the stronger.   It is to be regretted that, not unfrequently, these

have been sanctioned, without professional assistance, by the directors of purchasing companies, on most improper terms, much exceeding the worth of the business obtained ; and crude notions appear to be prevalent, that one or two years' purchase may be given for the income of a Life Office, without regard to the number of years each policy has been in force, or to the sufficiency of the premiums charged for the risk in each case, or, as to whether the lives are of a class to be desired by a respectable society.

XXIII.—The facility, with which amalgamations have hitherto been effected, is too frequently urged as an evidence of the practical security experienced by shareholders of Assurance Offices. For it is argued, that, " Even if we fail in succeeding as we expect to do, there will be no difficulty in transferring our business on advantageous terms to another society." This is undoubtedly true to a very great extent, where the amount of expenses incurred up to the time of sale has not been much disproportioned to the receipts ; the reason being, that most companies are anxious to increase the number of their policies, so as to render aberrations from the law of mortality less likely to occur ; and it is felt that, while a considerable immediate addition to the number of lives is secured by the purchase, the increased income obtained tends also to diminish the per centage that the expenditure need bear to the receipts of the society.

XXIV.— It is also true, that there are a considerable number of societies, which have been started without any particular class interest or connections to assist them in obtaining business ; and, although perhaps conducted with judgment, yet it is certain that each would gain by coalescing with three or four others, and by united strength thus present not only greater probability of stability, but also larger funds for the extension of their operations.

There are, of course, a few societies of high standing to which the addition of the businesses of other companies would scarcely be of importance, from the fact that they already transact large amounts of new assurances; but those cases are few and exceptional.

XXV.—A variety of practical considerations affect the theoretical price that might be offered for a business: one of which is the antecedents of the society to be bought, and the nature of the agencies and connections it can bring over. Discussion of such points, however, would be too long in this place. It may be remarked, nevertheless, that in measuring the goodwill and relative prosperity of an Assurance Office, as shown by business transacted or revenue created, those receipts only should be treated as Income, which arise from whole life and joint life policies on the full-premium system.

Term Policies are not deemed worthy of consideration, as but little profit is found to arise from them. In like manner policies on the half-premium or increasing scales of premium are, afterwards, in too many instances, abandoned when the debt becomes an incumbrance or the increase of premium too heavy.

XXVI.—The only sound way to estimate the position of a society, offered for amalgamation, is to make a regular valuation of the Policies; but this course is too often not adopted, from a desire to avoid the necessary expense of such investigations; yet it is important to know :—

1º.—What proportion of the past premiums the society should have in hand.

2º. —How much of the annual income of the society would be required in coming years to meet its existing engagements; and,

3º.—What is the probable amount of claims, looking to the average age of the lives assured, likely to accrue from and after the year at which the transfer takes place.

XXVII.—As regards the first, the ratio is given in Art. 15, p. 22, Appendix. The following Table may be used for obtaining an approximate valuation of the affairs of a society, by placing the policies in successive groups according to their average standing. An allowance can be made for the probable chance each policy has of lapsing, and of its surrender value being less than the net value given in the Table. It will be noticed that it does not necessarily follow, that a greater number of premiums must be held in hand to provide for a policy on an older life, than is requisite on a younger life.

The purchasers have also to consider that many of the existing assurers of the company, of which they are undertaking the risks, may offer their policies for surrender, and some inconvenience may arise from declining to meet an apparently fair demand. The very offices,—which, by making their valuations on full office premiums, show frequently a margin in the balance sheet, in favour of the society,—at the same time offer in their prospectuses, with regard to all their policies, should the assurers desire it, to give back for their surrender a price out of the past payments. They do not reflect that a contract, to get rid of which money would have to be repaid, cannot, concurrently, be treated as an Asset to the society.

The TABLE shows the Amount a Society should have in hand for every £1 a year of *net* premium received on a life, to meet the ultimate payment of the amount assured, according to the number of years expired since the issue of the Policy : in other words,—

How much of the *net* portion of the past premiums that each assurer has paid, a transferring office should have in hand to place its policies in a proper position with regard to the amalgamated society; Future Expenses and profits being supposed to be contributed out of the margin included in the premiums yet to be paid.

(English Life Law, 3 per cent.)

Age at issue of Policy.	Period of Years expired since issue of Policy.										Age at issue of Policy.
	5	10	15	20	25	30	35	40	45	50	
20	2.73	5.79	9.19	12.95	17.08	21.58	26.52	31.71	36.65	41.28	20
25	2.83	5.98	9.47	13.29	17.46	22.03	26.84	31.41	35.71	39.58	25
30	2.91	6.13	9.66	13.52	17.74	22.19	26.41	30.38	33.95	37.00	30
*35	2.97	6.22	9.78	*13.67	17.77	21.66	25.32	28.61	31.42		35
40	3.00	6.27	9.85	13.62	17.20	20.57	23.60	26.19			40
45	3.01	6.30	9.77	13.07	16.17	18.95	21.33				45
50	3.03	6.22	9.25	12.10	14.66	16.85					50
55	2.93	5.72	8.33	10.69	12.70						55
60	2.56	4.98	7.15	9.00							60
65	2.24	4.26	5.99								65
70	1.90	3.51									70
75	1.53										75

How much less than the above the purchasing company can consent to take, or in other words how much they can allow off it in the nature of good-will for Agencies, &c., is a matter that can only be measured according to the circumstances of each case : *but strict inquiry should be made as to what Bonuses have been allotted* or Reductions in premiums granted.

* EXAMPLE.—If £12 a year be the office premium on a Profit Policy for £490 (see Table, Art. XX.) effected at age 30, of which £10 is the net premium ; then, when it has been 20 years in existence, the society must have £136. 14s. in hand, out of the £240 received, towards meeting the original sum assured, exclusive of any Bonuses that may have been allotted.

XXVIII.—*As to Annual Income required to meet Engagements.*—In respect to the second point, in Art. XXVI, the following Table, calculated on the English Life Law of Mortality, will enable an estimate to be obtained. For example, if the present average age be * 40, and the total amount assured be a million on 1000 lives—then £13,000 will be the amount that may be expected to be claimed for deaths in the year following; £13,000 in the second year and so on ; assuming the transferred policies to be kept up. Again, if the average age be older, 45, but a lesser amount £861,000 be assured, then £81,000 are the claims that may be expected in the following five years, of which £17,000 will be in the fifth year, and so on, and in like proportion if the amount assured be more or less.

The increase in the amount of claims with advancing years,

has to be attended to.   Thus at 65 the claims would be
£28,000, double what they were at 44.

DECREMENT TABLE, *showing the Amount of Claims, that
may be expected out of* £1,000,000 *assured at average age* 40,
*and similarly for the amounts set down at older ages, supposing
them to represent the average age of a society, and assuming
all the Policies to be kept up.*

Age.	Number likely to die in the PERIOD out of 1000 lives.	Number likely to die in the YEAR.	Sums to be paid for Claims during the YEAR.	Sums to be paid for Claims in tho PERIOD.	Sums remaining Assured.	Requisite Income, from surviving Lives at NET Premiums of £2. 15s. per cent.	No. of Years.	Age.
40	—	—	———	————	£1,000,000	£27,500	0	40
41	13	13	£13,000	£13,000	987,000	27,142	1	41
42	13	13	13,000	13,000	974,000	26,785	2	42
43	13	13	13,000	13,000	961,000	26,427	3	43
44	13	13	13,000	13,000	948,000	26,070	4	44
45	14	14	14,000	14,000	934,000	25,685	5	45
50	73	15	15,000	73,000	861,000	23,677	10	50
55	81	17	17,000	81,000	780,000	21,450	15	55
60	95	21	21,000	95,000	685,000	18,837	20	60
65	119	25	25,000	119.000	566,000	15,565	25	65
70	137	28	28,000	137,000	429,000	11,797	30	70
75	143	28	28,000	143,000	286,000	7,865	35	75
80	129	24	24,000	129,000	157,000	4,317	40	80
85	92	15	15,000	92,000	65,000	1,787	45	85
90	47	6	6,000	47,000	18,000	495	50	90
95	16	2	2,000	16,000	2,000	55	55	95
100	2	—	—	2,000	———	—	60	100
	1000			£ 1,000,000				

XXIX.—*A brief notice of the circumstances, under which
the various existing Tables of Mortality were calculated, may be
interesting:*

So little was the average duration of life understood at the
beginning of the last century, that in some of the public loans
of that period, Government paid an annuity at the rate of 14
per cent. on a single life, 12 per cent. on two lives, and 10 per
cent. on three lives; and in 1704, annuities on single lives were
granted for 9 years' purchase, on two lives for 11 years'

purchase, and on three lives for 12 years' purchase.* If the rate of interest were now, as it was then, 6 per cent, these prices for single lives would, according to the Carlisle tables, correspond with ages between 57 and 60, and would be too little by about 50 per cent. for all ages below 40 upon an average.

The Northampton table was formed by Dr. Price from the Bills of mortality kept in the parish of All Saints, which is the largest of the four parishes of Northampton, during the period intervening between the years 1735 and 1780, and corrected by the result of other registers.

These local observations were too confined in extent to be applicable to the accurate determination of the chances of mortality among the general population of the kingdom ; and they soon became obsolete in point of time, even for the measurement of the mortality of the town or parish from the experience of which they were calculated.   This table was adopted by the Equitable Society for Life Insurance in 1789, and subsequently by many other insurance offices, and it is one on which they still compute rates for the insurance of lives, notwithstanding its *inaccuracy has been made evident by the results of their own experience, and notwithstanding their knowledge of this fact is made apparent by their rejection of this table, as a basis for computing the rates, on which they will grant annuities. Dr. Price also formed tables from observations made at Chester, Holy Cross in Salop, Warrington, and Breslaw.

XXX.—The Carlisle table was formed by Mr. Milne from observations made by Dr. Heysham during the years 1779 to

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* [Cleghorn, Edinburgh, 1834.   Parliamentary Paper, 443, 1858.]

† [In 1854 we succeeded in inducing the Legislature to prohibit the use of this table in measuring life contingencies for the valuations of ecclesiastical leases and enfranchisements.   (17 & 18 Vict., c. 116, s. 12.)—*See our Treatise on Copyhold and Church Property Enfranchisements.*]

1787, upon a population of about 8000, in the town of Carlisle.
The period of nine years was too short to determine the
average mortality of that town ; the population also and the
place were too small for its experience to be applicable
to the whole country. This table represented the duration
of life much more favorably than the Northampton, and is
at certain ages singularly close to the results furnished by
Dr. Farr, from the returns of the census of 1851 ; but Mr.
Farren remarks with justice :—" The Carlisle table of mor-
tality, as is sufficiently well known to all who have used it, and
as will be immediately apparent to any one who will take the
trouble to cast his eye down the column of ' decrement,' stands
much in need of adjustment. Mr. Milne, its constructor,
although he admits that he distributed the numbers given by
the observations among the separate years of age, by a tedious
tentative process, in which he may have committed error,
seems, nevertheless, to be of opinion that the resulting irregu-
larities may be indications of a law of nature, resulting from
our structure. In the present more advanced state of our
knowledge with regard to the laws of mortality, many persons
would not, now, be found to agree with him."

XXXI.—From the yearly reports made to the members of
the Equitable Assurance Society, an eminent Actuary, Mr.
Griffith Davies, calculated the mortality amongst its mem-
bers, who were select lives and chiefly males, and this table
was confirmed by the investigation of Mr. Babbage and
Mr. Gompertz. Some foreign tables have, also, acquired
reputation. The tables in general use in France, until the
recent ones by M. Dumont Ferrand and M. Legoyt, were calcu-
lated by M. de Parcieux. They are six in number; the first,
from deaths, mostly during the years1689 to 1696, amongst the
nominees of the French tontines ; the second, third, fourth and
fifth from the deaths among the monks of certain orders in
Paris ; and the last from the deaths among the Nuns at

Paris. The persons, from whose mortality the last five tables were calculated, lived under such peculiar circumstances as to render the results, only good as data to their own class, and in their own time and country. The lives in the first table were also select; and the experience, deducible from them, was inapplicable to the general population of France even of that period.

XXXII.—Incorrect data, like bad principles, produce a series of evil consequences. Upon the Northampton table the government had granted annuities to the extent of £810,000 per annum. For a life of sixty £10. 6s. 3d. per cent. annuity was allowed, while taking the price of stock to be between 79 and 80 (which is the average of the last one hundred years) the annuity ought to have been but £8. 10s. 7d. The deferred annuities were granted on still worse terms. Mr. Finlaison had the merit of calling the attention of several successive Chancellors of the Exchequer to the subject, representing that in April, 1827, this loss was advancing at the rate of £8000 every week, and during the three previous months had exceeded £95,000. The result of this representation was an order to Mr. Finlaison, senior, to proceed to form more correct tables, and a short time after they were completed, the evil was stopped by Act of Parliament.

For the purpose of investigating the true law of mortality, which prevailed among the people of England, Mr. Finlaison made his observations over 25,000 life annuitants, who had been registered as nominees in Tontines, and who were chosen by lot from the children of the clergy and magistracy throughout the country, extending over a period of more than thirty years. His table exhibited the expectation of life as it was in 1825, and as it was a century before that year, and discovered a very extraordinary improvement of human life in the interval, as well as a great difference in the duration between the two sexes. The duration of life in 1825, compared with what it was a century

ago was nearly as four to three, and the expectation of a female
life at birth to a male as 55 years to 50.   Mr. Finlaison, also,
calculated the mortality, which prevailed, during the years from
1814 to 1822, amongst 52,682 Chelsea out-pensioners, and
20,210 Greenwich out-pensioners.   The Expectations of their
lives were better than those shewn by the Northampton table ;
after 50 they were as good as those in the Carlisle table, and
came very close to the Swedish ; these lives being for the most
part originally good, though many had suffered from service in
foreign climes and severe wounds, were considered by Mr.
Finlaison as better than those of mechanics or labourers in
general ; upon the whole it cannot be doubted, that the tables
framed by Mr. Finlaison were the best extant, until the
appearance of the tables that are furnished through Dr. Farr
by the Registrar-General, which, being improved at each
successive census, will of course, in due time, supersede all
other laws of mortality.

XXXIII.—To determine, from time to time, the number of
people inhabiting a country and owing allegiance to its govern-
ment, is a matter of great national importance.   A very little
reflection must serve to convince us, that an accurate acquain-
tance with the absolute numbers of the people, and still more,
with the various physical and moral conditions under which they
take their places in the community, is necessary to the full
development of the national resources : when by the recur-
rence at stated intervals of these enumerations, we shall be
able to compare the progress made by the nation at different
periods, as regards all those circumstances which properly
should be comprised in the enquiry, the task of the govern-
ment and the legislature must be greatly simplified ; and on
the other hand it seems hardly possible, without such an inti-
mate and accurate acquaintance with the progressive condition
of a country, as can alone be obtained by means of statistical
inquiries, that the art of government should ever advance be-

yond the region of experiment, or assume the dignity of a science.

Former enumerations, made in the United Kingdom, were not so conducted as to lead, in any material or satisfactory degree, to this desirable end. If it had been possible at the first census in 1801, to suggest and carry out such a comprehensive plan, as would have embraced all the principal points which it is desirable to ascertain, and which could have afforded means for comparison with the same class of facts ascertained at subsequent decennial enumerations, a great light would have been thereby thrown upon many questions connected with the public weal, which are now involved in doubt and obscurity. The comparative progress made between the three decennial periods that occurred from 1801 to 1831, might have afforded peculiar means of instruction. From 1801 to 1811 the nation was engaged in war; the next interval was of a mixed character, being almost equally divided between war and peace; and the ten years from 1821 to 1831 were passed in profound peace. If the census of 1801 had been so conducted as to afford all the useful information, which such inquiries are fitted to bring to light, and if the subsequent enumerations had been made so as to admit of comparing one period with another, we might, or rather we must have been able, far more accurately than we now can, to estimate the consequences of war, and its influence upon the material condition of the people.

XXXIV.—The following facts are interesting :—

1.—In England and Wales births are to deaths as $3 : 2$; boys to girls born as 105 to 100. (*The ratio fluctuating between* 104 *and* 105 *to* 100, *or* 26 *to* 25, *and* 21 *to* 20.)

2.—In 1000 inhabitants in England and Wales,

33 are born
22 die   } yearly.
16 are married

3.—The population of England increased *from excess of births over deaths* during the year 1856 by 258,273 persons, or 708 per diem. In 1857, by 259,710 persons, or 712 per diem.—London by 30,156 persons, or 83 per diem in 1856; 30,474 in 1857.

4.—In the year 1852, 1000 persons a day emigrated from the country ; in the year 1856, 484 a day; in 1858, only 312.

5.—The mortality of males is at the rate of 2.313 per cent. for the average of 20 years, 1838-57 ; whilst of females it is 2.153 per cent., which rates are to each other as 107 : 100 ; that is, if 100 females die out of a given number of females, out of an equal number of males 107 males die.   The rate of mortality in England is lower than that of any other country in Europe, as appears by the following statement :—

			Annual Mortality.	
England	- - - -	1 death in	45	population.
France	- - - - -	1 ,,	43	,,
Prussia	- - - -	1 ,,	38	,,
Austria	- - - - -	1 ,,	33	,,
Russia	- - - - -	1 ,,	28	,,

XXXV.—The total population of the world is estimated at 1288 millions, as follows :—

1.—By race

Mongolian Race	-	-	-	Millions	522
Caucasian	-	-	-	-	,,	369
Malayan	-	-	-	-	,,	200
Æthiopian	-	-	-	-	,,	196
American	-	-	-	-	,,	1
				Millions	1288

2.—By religious denominations

Christians	-	-	-	-	Millions	335
Jews	-	-	-	-	,,	5
Asiatic Religions	-	-	-	,,	595
Mahommedans -	-	-	-	,,	160
Heathens	-	-	-	-	,,	193

Millions 1288

XXXVI.—The following are the populations of some of the most important countries, according to the most recent returns (with which we have been favoured by Dr. Michelsen, of the Board of Trade) :—

*Belgium - - - - -	Millions	$4\frac{1}{2}$
German States - - - -	,,	$43\frac{3}{10}$
viz. :—Austria *(proper)* - Millions	13
Prussia - - - - ,,	13
Bavaria - - - - ,,	5
*Hanover - - - ,,	2
*Wurtemburgh - - ,,	$1\frac{7}{10}$
Other States - - ,,	$8\frac{3}{5}$
Austrian Empire - - - - Millions	$39\frac{1}{2}$
*Holland - - - - - ,,	$3\frac{1}{2}$
*Denmark - - - - - ,,	$2\frac{1}{2}$
Sweden and Norway - - - ,,	5
Russia - - - - - ,,	65
Turkey - - - - - ,,	37
*Greece - - - - - ,,	1
Italian States—	
*Lombardy - - - Millions	3
*Venetia - - - - ,,	$2\frac{1}{2}$
Sardinian States - ,,	$5\frac{1}{6}$
*Roman States - - ,,	3
*Tuscany - - - - ,,	$1\frac{4}{5}$
Two Sicilies - - ,,	9

Spain	-	-	-	-	-	Millions	$16\frac{1}{2}$
*Portugal	-	-	-	-	-	,,	4
*Switzerland	-	-	-	-	-	,,	$2\frac{2}{5}$
British India	-	-	-	-	-	,,	180
America	-	-	-	-	-	,,	59

viz.:—United States - - Millions 28

    *British America - ,, 2

    Mexico - - - ,, $7\frac{1}{2}$

    Brazil - - - - ,, $7\frac{2}{3}$

    Other States - - ,, 14

*Australia and Polynesia - - Millions 2

XXXVII.—The following Table exhibits the progress of the population at various censuses, and shows that:—

While the population of Great Britain has sensibly increased, the progress of England and Wales has been most remarkable, and that London increased (in spite of deaths and emigration) at the rate of 41,382 souls a year, in the 10 years 1841 to 1851, partly from *excess of births over deaths,* and partly by excess of *Immigration* over *Emigration.*

THE POPULATION WAS

	In 1750.	1801.	Increase in 50 yrs	1841.	1851.	Increase in 10 yrs.
	Millions.	Millions.	Millions.	Millions.	Millions.	Millions.
England & Wales	$6\frac{1}{2}$	8.893	$2\frac{1}{3}$	15.914	17.928	2.014
*Scotland	...	1.608	...	2.620	2.889	.269
Ireland	...	...	...	8.020	6.330	de.1.690
Great Britain & ⎱ Ireland ...... ⎰	...	...	...	26.833	27.452	.619.
France..............	...	...	...	37	36	dec. 1
*London	...	.959	...	1.948	2.362	.414

    * *It is interesting to compare the populations of the countries marked thus * with that of London.*

PART I.

*Observations on **Life Assurance**, with an account of the Deposit and other Systems having for object its extension.*

ART. 1.—Our purpose in this part will be, mainly, to bring forward suggestions for the greater extension of life assurance among the middle and humbler classes, by removing, as far as may be practicable, the obstacles which exist, both as regards the public, and the life assurance companies themselves, in the adaptation of the system to their respective requirements. To make the remedies intelligible, we shall have to mention some of the obstacles ; but it will be advantageous to give, beforehand, a short account of the nature of a life assurance company, as described by Mr. De Morgan.

If a large number of persons, all of the same income and prospects, and all certain of the same duration of life, were to choose a common bank, in which to deposit their savings, each laying by a given proportion of his income, it is obvious that each would receive the same sum as the rest at his decease ; but if the lives were of unequal and uncertain duration, this result would no longer be produced. It might, however, be attained by a covenant, that all sums paid in should remain till all were dead, and then be equally divided among the executors of the parties. Such a bank might be called an equalization office, and it would present the first approximation towards an insurance office such as those which at present exist.

As yet, the interest of money has not been mentioned.

Suppose the equalization office to pay no interest; and suppose all the lives to be 20 years of age, such as are described in the Carlisle tables, the average duration of which is $41\frac{1}{2}$ years. If then, every person pay £1 per annum, each will ultimately receive $£41\frac{1}{2}$, which is the mere compensation of the inequality of life. Such persons would enter into a mutual covenant, by which, those who lived beyond the average term, would divide the surplus of their savings among those who fell short of it.

Probably, if the following question were put to all those whose lives are now insured:—"What is the *advantage* which you derive from investing your surplus income in an insurance office?" more than half would reply:—"The *certainty* of my executors receiving a sum at my death, were that to take place to-morrow." This is but half an answer; for not only does the office undertake the equalization of life, as above described, but also the *return of the sums invested, with* * *compound interest.*

No one can form an accurate idea of such an establishment, who does not consider it as a Savings Bank, yielding interest, and interest upon interest. This is the reason why an office, which charges for its insurance more than it is worth as an insurance, may nevertheless put its contributors in a better position than they could have held, if there had been no such institution. To make this matter clear, let us consider the working of a simple investment office. A large number of individuals subscribe a sum, which they trust to an individual or a company to employ, yielding them the return at some fixed but distant period. Let each share be £100. The best thing an individual could do with so small a sum, so as to have perfect security for its return, would be to invest it in the funds. He might also invest the interest, and thus obtain

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* [See Div. II, or Treatise on Building Societies and Tontines, for several Chapters on the Mathematical Doctrine of Compound Interest, with Practical Instructions and Tables.]

compound interest, but it is not easy for an individual to do this. Unless he provide an agent to draw the dividends immediately on their becoming due, various circumstances will happen to prevent the immediate investment of the interest. It is not at all an unfair calculation to suppose that, upon each half-yearly dividend, a month will be lost, so that nominal compound interest for 42 years will only be really for 35 years. A single pound, therefore, laid up by a man aged 20 years, and improved for the average term of his life, at $3\frac{1}{2}$ per cent. interest a year, would only become £3. 6s. 8d.; while in the hands of a person who lost no time, it would become £4. 5s., or nearly a pound more. It can be easily seen why an office of any magnitude rarely has any delay in making investments. Let us suppose (with the author before quoted) that it should happen that ten individuals together paid £100 into the office on account of life assurance premiums in the same hour in which the executors of a deceased contributor received a claim of £100. The hundred pounds, which in the theory of the process should be sold out, or otherwise set free to meet the claim, is in its practice supplied by fresh premiums, so that the premiums of those contributors are making interest from the hour in which they are paid. The advantage will be greater in large transactions. The payments would, also, be made without any loss arising from the sale, perhaps at an unfavourable price, of stock to meet the claim. All expenses paid, it may be stated, with correctness, that an investment society can realize (apart from a bonus) $3\frac{1}{2}$ per cent. per annum compound interest. Hence, £1 improved during the average life of an individual, aged 20 years, would become £4$\frac{1}{4}$.

2. The institution, thus described, is simply an office for the investment of premiums and the equalization of results. It becomes an insurance office, when it undertakes to pay a fixed sum for a fixed premium, at the end of a given time after the

decease of the party ; but, as Mr. Babbage remarks, so little
was known of the relative value of human life, at the time life
assurance began to be adopted in England, that persons were
indiscriminately insured at one common rate, without regard
either to age or health ; so that the young paid for the old,
and the strong for the infirm,—a manifest injustice to the
young and healthy members. Five pounds were at first
demanded as the price of assuring a hundred pounds for one
year on a life of any age ; and, at one establishment, middle
aged and old lives were not taken even on those terms. This
sum was, probably, fixed upon from its appearing that the an-
nual number of deaths in London was nearly one in twenty of
the population. It must soon have occurred to those who
wished to have recourse to such transactions, that the chance
of a person aged twenty dying within any given period, would
not be so great as that of a person of forty dying within the
same limit, and consequently that it was not equitable to de-
mand the same rate of premium in both cases ; and it must also
have appeared, that if a table of the number of persons amongst
a considerable population, dying annually at the different ages
of life, could be procured, by its means the relative chances of
life of persons of different ages might be assigned. Further
inquiries enabled actuaries to calculate a premium proportion-
ate to each age, based upon what is termed the doctrine of
Probabilities.

It has been justly remarked by the late distinguished actuary,
Mr. Galloway, that this doctrine is one of the most important
branches of mathematical science, inasmuch as it reduces to
calculation the reasons we may have for expecting any contin-
gent event, or believing any report or conclusion which may
not be necessarily true. When we consider that the entire
edifice of human science, with the exception of a few self-
evident truths, such as the axioms of geometry, is nothing
more than a collection of propositions, which can only be con-

sidered more or less probable, we can easily conceive the importance of a calculus which enables us to assign the degree of probability existing in each case.

The calculation of the probability of events, the chances of which are not known *a priori,* but deduced from experience, is founded on the supposed constancy of the laws of nature, in accordance with which, events arising from constant but unknown causes, when considered in large numbers, are always reproduced in the same order. Nothing is more remarkable in the various phenomena of the physical and moral world, than the constancy which is observed to exist in the recurrence of events of the same kind. For example, the ratio of male to female births furnishes a striking instance of the truth of this assertion :—

If we consider only a small number of births, nothing can be more uncertain than the result ; but if we take a very large number, as those of a whole kingdom, the proportion of male to female births, in the course of a year, is found to be almost invariable and nearly as 105 to 100.

The mean duration of human life affords another good illustration ; thus we find that the average duration of the lives of a large number of individuals living in the same country, is always found to be very nearly the same, notwithstanding the great uncertainty of human life individually, the difference of constitutions, and the various accidents to which mankind are liable : and experience proves, that pecuniary risks depending on these data, if undertaken in sufficiently large numbers, are among the least uncertain of all commercial speculations.

A similar constancy is observed in the results of other kinds of statistical inquiries. The number of crimes committed in a year, of the same species, the ratio of the number of trials to the number of acquittals, the number of conflagrations, the number of ships lost in a particular trade, of letters which pass through the post office, of patients admitted into the

public hospitals during a given period, are observed in every case to fluctuate between very narrow limits which approach nearer and nearer to each other, in proportion as the number of observations is increased. Hence, since experience teaches us that the recurrence of events approximates so nearly to fixed ratios, we are enabled to apply the calculus of probabilities to the solution of many of the most interesting and useful questions connected with our social and political institutions, and to determine the average result of a series of coming events, with as much certainty as if their chances were determinate and known *a priori.* It matters not whether the phenomenon under consideration belongs to the physical or moral order of things, the calculus is equally applicable when experience has determined the requisite data for the purpose.

3. One of the earliest applications of the theory of probability was that of determining from observations of *mortality

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* [From the census of 1841, we have the table furnished in the Appendix; and the following shews the Rate of Mortality for the year **1853,** which is interesting, as affording a comparison with the law prevailing in France.

England and *France,* Annual Rate of Mortality per cent. of Males and Females at different ages .—

	Annual Rate of Mortality per cent.			
Ages.	MALES.		FEMALES.	
	England and Wales.	France.	England and Wales.	France.
All Ages.	2.379	2.203	2.201	2.189
0	7.346	7.355	6.362	6.383
5	.847	.822	.813	.882
10	.506	.518	.540	.630
15	.828	.889	.861	.848
25	1.013	.874	1.064	.928
35	1.316	.985	1.251	1.007
45	1.958	1.474	1.596	1.339
55	3.278	2.893	2.845	2.732
65	6.912	6.521	6.133	6.598
75	15.897	16.022	14.106	15.376
85	31.297	29.273	28.968	29.371
95 and upwards.	47.305	38.422	45.770	35.966]

the average duration of human life, and the value of pecuniary interests dependent upon its continuance or failure. This particular application, according to Mr. Hendricks, appears to have been first thought of, or at least attempted to be carried into practical effect in Holland by Hudde, and the celebrated Pensionary De Witt; but the first tables of mortality, with the corresponding values of annuities on single lives, were constructed by our distinguished countryman Dr. Halley, and published in the Philosophical Transactions for 1693. Other tables were afterwards formed, which are called by the names of the places, where the observations were made on which they were calculated. The information, however, afforded by those observations, was neither so considerable nor so complete as it was desirable that the public should possess ; the sources on which they chiefly depended being parish registers, which in those times could not be altogether relied upon for accuracy. *(See* Preliminary Remarks on this head.)*

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* [When a society is not likely to have averages of lives about the same age, it is judicious to accept a lower amount of *Assurance Risk,* as the ages of the lives proposed are greater, so that the Present values of the *moral Expectation* of the current risks may not be greatly unequal. (See articles in Appendix on the distinction between *Moral* and *Mathematical* Expectations of Risks.)

The relative amounts, assured at various ages, might be proportionate to the number of premiums, that are likely to be received on each Policy, on the principle given in the Appendix. The following table will serve as a guide to Offices, taking a basis of £1000 at age 30, as the Limit or Maximum of Assurance to be kept, and shews the

Age.	Limit of Assurance Risk to be kept at each age.	Age.	Limit of Assurance Risk to be kept at each age.
	£.		£.
30	1000	60	559
35	945	65	482
40	883	70	395
45	820	75	317
50	745	80	261
55	653		

If the amount at 30 be greater, say £3000 or £5000, the corresponding amounts at the other ages will be proportionately increased. *A similar principle applies to the insurance of childrens' lives or other special risks.*]

4. Associations for assurance having been formed, and a
tolerably safe law of mortality calculated, it was deemed
expedient to fix the rates of annual, or other periodic, con-
tributions, upon such a principle, that not only might reasonable
expenses of management be provided for, but, also, that
every possible excess of early mortality among the members of
any individual society beyond the average of the community
at large, (according to the data by which the fundamental
table of mortality had been constructed) should be met with a
marginal fund. Hence it has been customary to charge assurers,
a somewhat higher * premium per cent. than that shewn as
necessary by the table of mortality ; and this reasonable caution
operates without injury to those, whose families benefit by the
policies of assurance, in case of premature death ; whilst those
subscribers, who survive beyond the tabular average of life,
have a compensation by way of Bonus, in case the institution
meets with a less degree of mortality than the premiums had
provided for.

In general the Bonus system would be deserving of
approval, if applied on the correct principle referred to
in Article xv. of our Preliminary Remarks, because it

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* [In the Appendix are given the formulæ and methods for calculating
Premiums for Assurance according to any table of mortality, with Instruc-
tions for Valuing Bonuses; and, in the Tables, are given the elementary data
of the Carlisle and English Life Laws of Mortality. Mr. Willich, in his
valuable "Popular Tables," has deduced the following simple formulæ for
remembering the Expectation of life at any age between 5 and 60:

By the Carlisle Law, the expectation is two-thirds of the difference between
$81\frac{1}{2}$ and the present age.

By the English Life Law, the expectation is two-thirds of the difference
between 80 and the present age.

Thus, as a person becomes one year older, his Expectation diminishes eight
months only ; and three times the difference between the expectation of life
at any two ages, is equal to twice the difference between the ages.]

must be considered as presenting one main improvement, that was wanting in life assurance, to remove the only selfish objection to which that beneficent invention of science was formerly open : *viz.*, that those who *live* pay for those who *die* beforehand ; since the periodical allotments of *Bonus, if calculated upon the principles we have recommended, tend continually to restore the balance of advantage to those members who survive each division of profits. (See Math: Appx.)

5.—The natural desire of persons to provide, in times of comparative prosperity, against privations attendant on adverse circumstances led to the formation of assurance companies, which were early recognised as the safest and most advantageous mode of effecting that object. The experience of more than a century and a half, and the great success of assurance institutions during that period, have not only established the soundness of the principles involved, but confirmed, beyond doubt, the fact that they offer one of the most legitimate mediums, by which careful and thrifty persons can invest their savings in such a way as to secure a large contingent profit, with the least possible risk.

When the † first Life assurance office was founded at the early part of the last century, considerable distrust for a long time prevailed respecting the stability of an institution, which undertook so great an apparent risk as the guaranteeing of a definite large sum to be payable to an assurer's family, however soon he might die, in consideration of a small annual payment to be made by him during his life. But—when years passed away and the scheme, so far from becoming a failure, answered admirably—the feeling of the world changed, and in all directions new societies began to spring up, which sought for and soon obtained public support. These old companies were accustomed, however, to conduct their business in an exclusive

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*   [See, also, upon this subject, various valuable papers read before the Institute of Actuaries by Mr. Jellicoe, one of the Vice-Presidents.]

†   [The most ancient existing Life office was founded in 1706.]

manner, regarding their own profit more than the convenience
or the wants of the assured ; and it is only within a very recent
period that societies have arisen based upon equitable princi-
ples, and extending their operations to an increased variety of
objects.   The mode of proceeding on the part of the old com-
panies necessarily narrowed the field of their usefulness.
Hence we find that even in the middle classes but a small
proportion of persons are, or have ever been, assured ; whilst
the industrious classes are wholly denied admission, excepting
in a few offices of modern date, and although many advantages
are held out to them by Savings Banks, those excellent insti-
tutions offer only a *personal* profit upon investments, and no
contingent advantage to a depositor's family.

6.—The industrious classes have also been debarred from
the benefits of life assurance by the uncertainty of their
incomes.   Even where they have insured, instances have too
frequently occurred in which they have found it impossible to
keep up their policies, as they advanced in years and their
means of existence began to diminish ; yet a regularity of
payment is the fundamental condition, which, in too many
offices, if disregarded, causes the whole benefit they have so
long struggled to secure, to be forfeited to the proprietors
or other members.   All, who have had opportunities of hear-
ing the objections which are most frequently mentioned when
life assurance is urged on public attention, are aware that the
very first is the inconvenience that an assurer is exposed to,
who burdens himself for life with the payment of an annuity,
in the shape of a periodically recurring premium, whilst he
does not know how soon his circumstances or views may
change, and secondly, that if he be compelled to discontinue
his assurance, he may lose nearly the whole of the amount he
has paid in.   Many persons also are unwilling to lock up from
their own use, during their lifetime, the funds they are accu-
mulating : some fearing that occasions may arise, when most
pressing need may be felt for a portion thereof; others thinking

that in their * old age, they may want the money for themselves.

Such objections are easily conceived :—For example, at age 40, a man in good health can assure his life by Table 1, page 51, for £500, by an annual premium of £14. 17s. 6d.   Now it is exceedingly natural that he should entertain hesitation before undertaking such a payment, if his income be one fluctuating in point of time or amount—and those whose incomes are not of a fluctuating nature are the exception to the great body of the community.   This consideration has had a most powerful effect in restricting the application of life assurance.

7.—Another obstacle is caused by the regulations of most of the assurance companies.   They decline to receive Small payments, whether monthly or weekly, principally on account of the trouble and expense attending the same.   This, however, is what persons of limited means mainly require.   Yet the companies have reasonable grounds for their refusal.   Take the case of an assurer proposing for a small sum, say £100, purchaseable by weekly instalments. At age 26, the annual rate is £2. 0s. 0d. per cent. (Table 1,) or weekly under 11d., while the preliminary expenses attending the medical examination of the life, with the inquiries into his

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* [In *Art.* 39, *p.* 31 of the *Mathematical Appendix* relating to Allotments of Bonus, will be found a formula for apportioning the Profits of a society, so that, *not only the Payment of Premiums by the Assurer may be made to cease in case of his living beyond the average age, but also that the amount insured may actually become payable to himself at a certain date, instead of to his representatives at his death.*

Such a mode of allotment would meet many of the objections to the Bonus system (which we have discussed in our Preliminary Remarks to this Treatise, Art. xiii.) and it is singular that it has not been thought of by the Older Companies, which charge the very high rates of Premium based upon the Northampton Law of Mortality.

Those rates are sufficient to enable the Policies to be paid to their Assurers at comparatively early ages.   For example :—

The annual Premium charged by many old offices to assure £100 at age 20 is £2 3s. 7d. This rate exceeds the *Net annual* Premium (Reg. Gen. Returns 3 per cent. see p. xxx. ante.) by 11s. 11d. The difference (less 5 per cent on the Premium for expenses) or 9s. 9d , applied by way of Bonus periodically, would (even if only 3 per cent. interest be realized) enable the Policy to be payable to the assurer at age 59, or in case of previous death.

Should the Society make surplus Profits from a higher rate than 3 per cent. being obtained from its investments, or by lapsed Policies, or other causes, then the age would come out earlier.]

habits of life, and the cost and trouble of the policy and papers, all combine to make his proposal as expensive as in the case of a larger assurance; so that to cover the first outlay the company is compelled to require the first year's premium to be paid in advance, even if they allowed the second and subsequent payments to be made by small instalments. (See Art. 39.)

8.—A further objection to the present system is the recurrence of *Fixed* payments :—An assurer (at say 35 years of age) who has assured his life for £1000 at £25. 10s. 0d. a year, or for a lesser or larger sum, might be able to pay one year £25 or £20, another year £35 or £30, but he is not permitted to have the option in his own hands of varying, as his necessities may dictate, even within reasonable limits, the amount and periods of his payments.

9.—Again, where policies are effected on the lives of other parties (as by *Creditors upon the lives of Debtors) to secure a debt, objection is raised that if the creditor die before his debtor, his family may not be able to keep up the policy and the premiums paid may be lost.

10.—The above objections may to some extent be obviated by a more general adoption of the following regulations in existing or future Industrial Assurance Offices.

 1. †The *Suspension* principle. (See Art. 13.)
 2. That assurers, desirous of discontinuing their annual premiums altogether, be allowed to surrender the policy to the office and receive, instead, another policy of less amount, equivalent to the premiums paid and free from future payments. (See Art. 25, Math: Appx.)
 3. The *Deposit* system. (See Art. 18.)

* [To meet the objection in Art. 9 and in similar cases where the payment of the premiums depends upon another life besides that assured, the premiums may be calculated thus :—Let the present value of the assurance be estimated on the life involved; the value of the premium be measured by the joint existence of the life assured and that of the Purchaser, so that the payment of premiums should cease when either life dropped; the sum assured being payable to the creditor or his heirs only when the debtor dies. *For the Formulæ see Art. 6, p. 5 of the Mathematical Notes on the Valuation of Life Contingencies, appended to our* Treatise on the Enfranchisement of Copyhold, Life-Leasehold, and Church property.]

† [See several Tables for New systems of Assurance at pages 158, 159.]

4. The *Transfer* or *Substitution* plan.   (See Art. 21.)

5. That the payment of premiums be allowed *quarterly, or monthly*, or to be compounded for by one single payment, commonly called the *single premium;* or that they may be made on the *descending* or *ascending* scales—that is, the annual payments diminishing or increasing in amount, so as to suit the convenience of persons whose circumstances are subject to change:—For instance—a man, whose income arises from fixed sources and will probably not alter, would find it convenient to pay for an assurance on his life by annual payments, which would diminish as his family increases and his children growing older entail greater expenses upon him.   On the other hand, a young man starting in life, and hoping to increase his future income by his professional or other occupation, might prefer to pay less at first, and more afterwards, for the assurance which, at his death, is to provide for his family.

6. That Half the annual premium be allowed to be kept unpaid for the first seven years at £5 per cent. interest. (See p. 29.)

7. That there be no Fees on entrance, nor any expense in effecting an assurance.

8. That all claims by death be paid by the society at the expiration of one month, after satisfactory evidence of the death of the assured has been furnished.

9. That policies on the lives of parties, *who may die by suicide, duelling, or the hands of justice, be not void after five years' duration.*

10. *That the machinery of the Savings Banks be used for receiving weekly payments.

Other suggestions for the greater development of life assurance are mentioned in Arts. 17, 31, 37, & 40, of this Treatise, and in the Appendix; but we may remark that it would be useless for assurance companies to afford facilities for the Industrious classes to assure their lives, unless the Legislature devise some secure method by which the first object of an assurer may be attained, viz., *to provide for his wife and children in case of premature decease.*

11.—This can scarcely be said to be the case at present, as a Policy of Insurance taken out for the benefit of a man's family

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* [See Part **V** of Division I, or the Treatise on Savings Banks.]

is liable, like any other property, for his debts should he happen
to leave any at his death.   This is a contingency which many
eminent economists consider should be removed by the Law.
They hold that, *by the act of marriage,* a man has undertaken
the distinct responsibility of providing, as far as may lie in
his power, for his wife and children ; and, that if he incur other
liabilities of a pecuniary character, his family have at least as
great a right as any other creditor to require some provision
to be secured to them by a Policy of Assurance ; and that it is
to the interest of the community at large that, where Insurances
have been effected, the assurer should have the power of
making some portion of them specially available for his family.

The question is a difficult one, and able arguments have been
advanced both for and against such a power being sanctioned
by the State.   It may be observed, however, that the principle
has already been recognised to a limited extent in this country,
by the *Acts relating to Friendly Societies,* and its importance
was long ago admitted in **America,* and on the Continent.

12.—On the other hand, *as regards Creditors,* the full develop-
ment of Life Assurance has been prevented by the existing legal
impediments to the *Assignment* of Policies, and by the frequent
law expenses consequently incurred, in afterwards obtaining
payment of the amount assured.

Whatever opinion may be entertained as to the propriety
of legalising the assignment of †" Choses in action" generally,
there can be little doubt that policies of assurance will never

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* [The following law has been passed with this object in the State of New
York.   (April 1st 1840):—An Act for the benefit of Married Women.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:—

§ 1. It shall be lawful for any married woman by herself, and in her name or in the name of
any third person, with his assent as her trustee, to cause to be insured, for her sole use, the life of
her husband, for any definite period, or for the term of his natural life; and in case of her
surviving her husband, the sum or net amount of the insurance becoming due and payable by
the terms of the insurance shall be payable to her, to and for her own use, free from the claims
of the representatives of her husband or of any of his creditors; but such exemption shall not
apply where the amount of premium paid annually shall exceed three hundred dollars.

§ 2. In case of the death of the wife before the decease of her husband, the amount of the
insurance may be made payable after death to her children for their use: and to their guardian,
if under age.]

†[For the information of our non-legal readers we may remark, that property *in
action* is where a man has not the enjoyment (actual or constructive) of the
thing in question, but merely the right to recover it by a suit or action at law,

obtain their full value as commercial securities, until they are assignable by simple endorsement, like Bills of Exchange.*

Among the many arguments that can be advanced in favour of a law being passed to that effect, is one furnished by the fundamental principles of Political Economy, viz., that the prosperity of a trading community depends on the extension of credit, provided such credit bear some proportion to the capital which guarantees it.   It is not necessary that the capital should be " in possession," and public credit is a thing essentially *personal* and dependent on the existence of the individual to whom it is given.   It follows, therefore, that such an instrument as a Policy of Assurance, which so much facilitates the creation of capital, and gives security to the creditor, may be made a most important element in commercial operations;—and the rights of the party to whose possession it is transferred should, so long as he remains the holder of it, be undoubted and complete.

The Suspension principle.

13.—When the principles involved in Life Assurance cal-

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from whence the thing so recoverable is called a "chose in action." Thus, money owed on a bond is a chose in action, for a property in the money vests whenever it becomes payable, but there is no possession till recovered by course of law, unless payment be first voluntarily made—A chose in action is a thing rather in *potentia* than in *esse*, though the owner may have as absolute a property in and be as well entitled to such things in action as to things in possession.   By the strict rule of the ancient common law no *chose in action* could be assigned or granted over, because it was thought to be a great encouragement to litigiousness if a man were allowed to make over to a stranger his right of going to law.   Hence the form of assigning a chose in action is in the nature of a *declaration of trust*, and an agreement to permit the assignee to make use of the name of the assignor in order to recover the possession.   *The Court of Equity*, however, make the rule give way to the expediency (in a commercial point of view) of facilitating the transfer of property, and allow the assignment of a chose in action as freely and directly as the law does that of a chose in possession.   Nevertheless, if A. after effecting an assurance on his own life assigns it and then dies, any action that may become necessary to recover the amount of the policy must be brought in the name of the executors of A., for the policy and the right of action as annexed to it, is · a chose in action.   The fact of the assignees giving notice to the assurance office makes no difference as to the parties in whose name the action must be brought.   Notice is given in order to preserve priority over any future incumbrance that A. might create, or in case of bankruptcy or insolvency.]

* [The sum of money for which a bill is drawn is a chose in action and not a thing in possession ; and by the general rule would be incapable of assignment, yet if a Bill be payable to order or bearer, the same is liable to be assigned.]

culations were not so well understood as at present, the older companies were able, for many years, to persist in a system of high charge as regarded their premiums, and in rigid regulations with respect to the continued validity of their policies. Increasing competition for business, however, gradually induced them to issue policies upon fairer terms to the assured, in which one of the first new features was " *The returning an assurer, on surrender of his policy, a portion of the premiums he had paid, if he found himself unable to keep it up,*" whereas it had been previously the custom to declare the premiums altogether forfeited.

With this improvement, the old plan of assurance went on as before, many policies being discontinued from time to time, through the temporary necessities of those who, not being always able to pay the renewal premium, were compelled to surrender their assurance to the office at a very great sacrifice.

No provision was ever attempted to be made for what unfortunately, as we have before said, so often happens to persons whose incomes are derived from personal exertions or trade—who frequently find that money, which they count on receiving, does not come in at the time they expect it; and this too, perhaps, just when a renewal premium has become due upon a policy, the non-payment of which within the three weeks' or month's grace (usually allowed) at once causes it to *lapse*, and thus destroys all the benefit, which the assurer had hoped (after perhaps many payments) to secure to his family at his decease.

This objection to the system must have militated materially even against the profit of the companies, by deterring many careful persons from assuring, who naturally felt little disposed to commence any undertaking, which possibly could be frustrated by *one year's temporary pressure in their incomes.* The number of persons now assured is great, compared with what was the case twenty or thirty years ago, and yet it is lamentably small relative to the population of this country. No one will venture to say that the numbers assured would not have been much greater, if this objection had been removed,

and few of the persons already assured are able to feel confident that the time may not come, when they may themselves be *temporarily* quite unable to meet the renewal payments on their policies when they become due.

To meet this contingency we suggested some years ago the following, as a regulation that might with propriety and safety be adopted ; from which it will be evident that no policy can ever be forfeited from mere temporary pressure in the monetary affairs of its possessor.   It is thus stated :—

"*As it may happen that an assurer may, from unforeseen circumstances, be unable to pay a premium when it becomes due, he will, on making application to the directors, be allowed once (or oftener, should the value of the policy at the time of the application permit it,) to have the privilege of Suspending the payment of that premium, (provided he has already paid three whole premiums at least on the policy, and it be one for the whole life of the assured.) And his policy will be endorsed to the effect that it continues in force, as if the premium suspended were paid, (provided interest at £5 per cent, be paid annually on the same) but charged with a debt equal to that premium, which will be deducted from the amount of the policy when the assured dies.   The policy holder will have it in his power to free his policy from the debt, at any time, by paying the amount due.** "*

The following example will illustrate the plan :—A person aged 26, assures his life for £500 on Table 1, page 51, at an annual premium of £10.   At the beginning of the fifth year of the existence of his policy, he finds he is without the money to pay the fifth premium.   He avails himself of the privilege allowed by the society, and obtains the endorsement on his policy as before stated.   The year passes away, and at the beginning of the sixth year he is alive, and still not able to pay up the suspended premium.   He pays, therefore, the

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* ["Half premium policies will not be entitled to this privilege, unless the arrears due shall have been previously paid up.   Fourteen days' notice requesting this permission, must be given, prior to the premiums becoming due. Where the policy is assigned or otherwise held in trust, the consent of the party interested must be given, in writing, to premiums being suspended."]

sixth premium and the successive ones after that, and leaves the suspended premium as a debt against his policy ; paying, however, annually, ten shillings interest upon it.

" We approve very highly of this plan, (says a writer of experience) for we have seen valuable policies lost to families by such pressure as is here described, and sold by auction at the price, perhaps, of three or four hundred pounds, after premiums to the amount of £1000 or £1200 had been paid upon them to the richest and most esteemed old assurance companies in London ; and we do not hesitate to say, that any relief from so perilous a predicament, especially in times so precarious and changeful as those in which we live, must be welcomed as a manifest improvement in the system."

14.—This plan of *Suspending the payment* is unique as yet in life assurance operations for three reasons :—

" 1st.   Because most societies will not lend on the mere security of the policy (if it has only been three years, or thereabouts, in existence), sufficient money to pay the premium ; simply from the fact that the saleable office value of the policy, at that time, is not in their estimation equal to *one* premium.

2dly.   The offices under the old system will *never* make any advance under £50, and some not under £100, and even £200, whilst the premium may be only £15 or £20 ; thus rendering it necessary for a person, who wishes merely to provide for the payment which has become due on his policy, to borrow more than he requires, for which, also, he has to pay a high rate of interest ; and this he can only do, after such a number of years has elapsed as would cause the policy to be of sufficient office value to be security for the £50 or £100, which is the lowest sum that would be lent.

The 3rd reason is the most important.   In obtaining a *loan* from a society on the *security* of a policy, it must always be *deposited* in the hands of the society during the whole time that the loan continues.   This is therefore at once an

important objection, since policies are frequently required for *commercial purposes* (such as mortgage security, &c.,) and few persons would like, or be even able, to deposit their policies in the hands of the office by which they were issued."

None of these objections exist in the Suspension system : the privilege is granted without condition or deposit of the policy, and even when three years only have elapsed in its existence. The payment of a premium may be *suspended* should the assurer unexpectedly be unable to meet it; whatever be his age or the state of his health.

15.—Several instances have come under our notice of the benefits conferred by the Suspension principle. One we will mention in detail :—In 1847, among the numerous failures, a leading firm became bankrupt, and the services of its officers being no longer required, they were dismissed. One, who had been twenty years in a high confidential appointment in that firm, partook of the general misfortune. He lost thus suddenly a liberal income, relying upon the continuance of which he had effected assurances to considerable amounts in several companies. Not being able to make the renewal payments for 1847, he applied to each of the offices for permission to suspend the premium for 12 months, but the replies he received from all but one were unfavourable. All his policies therefore, but one, dropped and were lost to his wife and children. The other was allowed to continue in force. Within twelve months the excellence of the character, he had secured by past meritorious services, added to his qualifications brought him again into good employ, and he was enabled to keep up the Suspended policy. By the rules of the other assurance offices, he could within six or twelve months have possibly revived his policies, on paying a fine for their having lapsed, *provided his health had continued unimpaired.* But unfortunately, as so frequently happens, that health, which had been excellent some years previously when the assurances were effected, had been deteriorating for some time, and the sudden failure of

the firm in 1847, with its attendant anxiety, had militated
against its improvement. The medical officers could not advise
their Boards that the life was re-acceptable, or that the policies
should be revived. He thus lost for his family, by temporary
pressure arising from temporary loss of employment, in all but
one solitary instance, the assurance protection which he had
for many years struggled anxiously to secure for his family.

16.—Other examples might be mentioned, such as that of an
eminent contractor whose assurances, to upwards of £38,000,
were perilled in that same year by the difficulty of making the
renewal payments, to meet which he was compelled to sell
valuable securities at a loss;—of a private gentleman, called
upon unexpectedly to pay a large sum for the delinquency of
a friend in a government situation, whose surety he had
become : a sum, which was equal to two-thirds of his income
and left him without the means of meeting his own usual pay-
ments;—of professional men, and others in the enjoyment of
apparently average fixed incomes, who have been from tem-
porary difficulty unable to pay up their premiums on their
policies.—These cases should come home to all our readers ;
and the Actuaries of Assurance Offices should cease to say,
" Oh, what trouble such a plan would entail." They should
consider more the *unnecessary* harshness of their present system.
We have said unnecessary, because the measure proposed has
a principle for its basis not unprofitable to the office. The
privilege, as worded above, can commence only when at least
three premiums have been paid, because then the true value
of the policy, or the sum which could be theoretically allowed
for its surrender, is in general more than sufficient to cover the
temporary insurance for one year, at the age of the assured
when application is made to suspend. The office runs no
risk, as the next and subsequent premiums would have to be paid
in due time, and interest at 5 per cent. could be charged on
the sum suspended. After a few more years of regular pay-
ment, the policy could, if required, bear a second or more

suspensions. The office would always be protected from loss and would be making 5 per cent. interest for the money-value of the privilege conceded, whilst 3 per cent. is the rate allowed to assurers in the premium tables.

17.—*Another practical improvement is becoming generally adopted.*—In many Societies an Assurer can at any time cease his future payments, and instead of receiving back a proportionate amount of the premiums he has paid, he can be credited with an equivalent reduced assurance payable at death, denominated a * Free Policy, because it is free from future charges for premiums. With but a few exceptions the offices do not, however, *at the time of issuing their policies*, fix the scale of reduced assurance, nor forego the arbitrary power, too often exercised, of dealing at their will with the assurer, when a time of difficulty has come and he is compelled to accede to almost any terms, from being unable to keep up his payments. To guard against this it is desirable to include in the conditions of the policy some such words as the following :—

That, at any time after five premiums have been paid, the assurer shall be at liberty to cease all future payments on his policy, and be considered as having purchased a reduced assurance, (payable three months after his decease,) to be estimated, according to the table †printed on the back of the policy, by subtracting from the original amount assured that amount of assurance which the rate of periodic premiums, that he has been paying, would purchase at his advanced age, when he proposes to cease all future payments.

The principle of such a clause is this :—If, at age *a*, the cost of a policy for £1000 is £20 a year, and, at age *b*, £35 a year; —then, reserving off the £35 in favour of the society a margin, say of 20 per cent. (or whatever it may be that has been charged in the annual premiums for the security and expenses of the

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* [In the Appendix, pages 24, 25, we have given formulæ for estimating Free Reversionary Policies.]

† [The table so endorsed should be one of *net* premiums, so as to give the office a *small margin* in the calculation.]

office), £28 a year, at the advanced age *b*, is the *net* premium, which would assure a new policy for £1000; therefore, by rule of three, £20 at the same advanced age would assure £714. 5*s.* nearly; which is the sum that a policy for £1000, taken out at age *a*, would be diminished, if, at age *b*, the assurer determined to cease his future payments,—or, the policy would be reduced to £285. 15*s.* (See also Art. 25, Math: Appx.)

By this plan, policy-holders would at all times be aware of the *minimum* amount of Free Reversionary Policies, which they would be certain to have secured, in case of future unforeseen difficulties occurring to prevent the keeping up of the original amounts assured.

The Deposit system of Assurance for Sums payable at Death.

18.—A fourth improvement in life assurance is that termed the *Deposit or Accumulative system*, by which, to some extent, obstacles in the way of Industrial assurance are removed. For explanation we will quote from the prospectus of one of the assurance offices which have adopted it, basing its tables on the mathematical formulæ (involving *two* co-existent rates of interest) which will be found in the Appendix to * Division II of our Treatise on Associations for Provident Investment.

" This system of life assurance affords peculiar advantages to parties whose incomes are *liable* to *change;* inasmuch as, by depositing in the office *small or large sums,* not regularly year by year, but †when it suits their convenience, and in such

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* [The Treatise on Building Societies and Tontines, p. 289 to 292.]

† [The same particulars relative to the health of the party are required as in the case of an ordinary assurance. And the person assuring may make his deposits as often and when he pleases, or only once.

The deposit plan is capable of a variety of modifications, according to the life contingency it is desired to meet : one extension of considerable importance is the payment to the depositor himself, during his lifetime, of a portion of the current interest on the money deposited, with the further advantage of a policy of assurance of lesser amount, secured pay ble to his family at his death.

Another modification of the system, not at present practised, would consist in the allowing the assurer to keep up the difference between the amount of his Policy, at the time of withdrawal, and the sum deposited, by that annual premium payment, which would have been charged when he entered]

different amounts as they may wish, they can obtain a policy of assurance, of which the value increases with the number and amount of the deposits made ; with a further advantage, " that should the assurer at any time wish to *withdraw* the whole or part of the money deposited, he may do so on giving *two weeks'* notice to the office, which will return him the money required, with an endorsement on his policy, reciting that its value is diminished by an amount proportionate to the sum withdrawn." [*This is illustrated in the example to Tables A, and B.*]

* TABLE A.	TABLE B
Amount payable at Death, *which may be secured by the* single *Deposit of £.100 at the respective Ages against which each such Amount is set, with profits.*	Amount payable at Death, *which may be secured by the* single *Deposit of £.10 at the respective Ages against which each such Amount is set, with profits.*

Age next Birth-day.	Amount Assured.			Age next Birth-day.	Amount Assured.			Age next Birth-day.	Amount Assured			Age next Birth-day.	Amount Assured.		
	£.	s.	d		£.	s.	d.		£.	s.	d.		£.	s.	d
16	268	9	9	39	190	9	1	16	26	16	11	39	19	0	10
17	264	16	2	40	187	19	10	17	26	9	7	40	18	15	11
18	261	5	8	41	185	8	1	18	26	2	6	41	18	10	9
19	257	10	9	42	183	0	2	19	25	15	1	42	18	6	0
†20	253	12	5	43	180	12	10	‡20	25	7	2	43	18	1	2
21	249	17	9	44	178	4	6	21	24	19	9	44	17	16	5
22	246	6	8	45	175	15	8	22	24	12	8	45	17	11	6
23	242	6	11	46	173	6	6	23	24	4	8	46	17	6	7
24	238	11	6	47	170	17	7	24	23	17	1	47	17	1	9
25	234	10	7	48	168	6	2	25	23	9	0	48	16	16	7
26	231	1	7	49	165	12	1	26	23	2	2	49	16	11	2
27	227	11	10	50	162	17	4	27	22	15	2	50	16	5	8
28	223	13	6	51	160	1	9	28	22	7	4	51	16	0	2
29	220	7	9	52	157	6	11	29	22	0	9	52	15	14	8
30	217	9	5	53	154	15	2	30	21	14	11	53	15	9	6
31	214	10	1	54	152	3	9	31	21	9	0	54	15	4	5
32	211	13	6	55	149	13	5	32	21	3	4	55	14	19	4
33	208	16	2	56	147	1	1	33	20	17	7	56	14	14	1
34	205	15	2	57	144	16	11	34	20	11	6	57	14	9	7
35	202	14	5	58	142	11	5	35	20	5	5	58	14	5	1
36	199	14	10	59	140	10	3	36	19	19	5	59	14	1	0
37	196	14	5	60	138	13	4	37	19	13	5	60	13	17	4
38	193	13	1					38	19	7	3				

* [At page 145, see also *Deposit Tables* for Term-certain Deposits and Deferred Annuities, which are calculated upon the formulæ for two co-existent rates of Interest before referred to.]

† [Example :—Thus, a person aged 20 may, by the *single* deposit of £.100,

According to the *ordinary* plan of assurance, a compara-
tively small *annual* premium secures a large sum payable
should the assurer die even the day after the *first* premium has
been paid ; but the premiums must be paid regularly year by
year, and they cannot be withdrawn from the society, except
in the shape of a loan on which the payment of interest is
required.

" The deposit *plan presents, on the other hand, the advantages
of a secure investment for money, which, whilst it is constantly
improving and increasing in value, may at any time be* with-
drawn, *wholly or in part, with the same facility as a deposit
account with a Banker. And, at the same time, so long as the
money or any part of it remains deposited with the society, it
produces a corresponding assurance effected on the life of the
depositor, and entitles his family at his death to a sum of
money varying with the age at which the deposit was made.*"

19.—The peculiar advantages offered by this Accumulative
mode of Assurance, are found to be applicable to an infinite
variety of cases.   For example : Parents and Guardians
may make provision either for the present wants of children,
or for the purpose of recovering, in the event of their
premature decease, all charges incurred for their education
and advancement in life.   Thus, let a parent determine to
lay by £50 per annum for the benefit of a child, now

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acquire a Policy of £253 12s. 5d., or, in other words, a right to have
£253 12s 5d. paid at his death, even if that should take place within the
same year in which the deposit is made ; or if he have already made deposits,
his Policy will be increased by this further amount, and he may, *at any time*,
on giving TWO WEEKS' notice, draw out the whole or any part of the money
so deposited, by the surrender of so much Assurance as, at the advanced
age to which he has attained, would be purchased by the money withdrawn.
Thus, on attaining the age of 60, he can withdraw £100 by surrendering
£138 13s. 4d. of his Assurance, and the balance £114 19s. 1d., will remain
to be paid to his representatives at his death.   Or,

(‡) A person aged 20 may, by the *single* deposit of £10, acquire a
Policy of £25. 7s. 2d., or, in other words, a right to have £25. 7s. 2d.
paid at his death, with the other advantages detailed in the Example to
Table A.]

ten years of age, and to expend £75 per annum on his
education and entrance into life.　By effecting an *Accumu-
lative Assurance*, the case would stand thus :—£50 is imme-
diately deposited for the assurance, while the £75 is devoted
to the purpose of education.　If death should occur in the
first year, the Company would pay £140, which would restore
more than both premium and cost for education.　On the pay-
ment of subsequent Deposits * of £50, the sum assured would
become £279. 5s. in the event of death during the second year;
and thus with each successive payment, this sum would
commensurately increase; so that in the—

3rd. year it would be	£417	3	11
4th.	,,	,,	554	0	5
5th.	,.	,,	690	2	2
6th.	,,	.,	825	13	5
7th.	,,	.,	959	18	4
8th.	,,	.,	1092	6	5
9th.	,,	,.	1222	19	3
10th.	,,	,,	1351	14	7
11th.	,,	,,	1478	10	11

shewing that, in any interval from ten to twenty-one, there
would have been the repayment, in the event of the child's
death, of an amount exceeding *the whole of the premiums and
charges for education;* and in the event of his living, either the
refunding of all the premiums paid, £550, as a Capital where-
with to engage in business, or the guarantee of an Assurance

* [A repetition of deposits, of equal or lesser amounts, may safely be allowed
without fresh m dical examination or proof of unaltered good health, as the
office would not by such deposits be in a worse position than if the party, at
the commencement, had at once decided to undertake recurring payments to
procure a large policy ; and this recurrence of optional deposits may be allowed,
without inquiry into the state of health, until the aggregate of the separate
deposit policies is equal to the amount which a fixed annual payment of the
deposit would have assured.　The assurance society may well incur the
possible chance of a deposit being brought for assurance just when the health is
deteriorated, as it would not, on the average of its deposit business, be worse
off than in the cases where the deterioration of health takes place in ordinary
assurance policies. |

of £1478. 10s. 11d. increasing with every succeeding premium, if paid, and by the bonus divisions.

20.—If the Deposit system were adopted by Government through the Savings Banks, for small sums, it would become very general, as they have the machinery ready for receiving deposits, and the medical examination could easily be supplied. In Part II, we will enter upon this subject in relation to certain clauses in the new Savings Banks' Bill, expected to be introduced by the Chancellor of the Exchequer : but we would here draw attention to the fact, that through the agency of Savings Banks, premiums payable in small weekly payments from pennies upwards, might be received for the assurance of sums from £5 upwards, payable at death. The very large number of assurances thereby facilitated, would render medical testimony, or examination of the lives, no longer of primary importance, as is the case at present with ordinary assurances companies.

The Transfer, or Substitution, principle.

21.—To make the system complete, we propose another principle, which we denominate the *Transfer*.

If taken out for the whole of life, (but not otherwise), a Policy might be made Transferable to some other life, at the death of which substituted life, in lieu of the original one, the amount assured should be paid ; the successor thus standing, relative to the society, in the same position as his predecessor :—it being understood that the substituted life shall not be of greater age than the one in the policy at the time of Transfer, and also in perfect health. A small fee, of proportionate amount to the sum assured, for office trouble, &c. is all the charge that need be required for this permission ; the Society having nothing to do with whatever arrangements the parties concerned in the transaction may choose to make between themselves.

22.—In the same manner, the privilege might also be

extended to the holders of policies of Endowment for Children, or Provision for old age; provided the said policies are effected on the returnable rates.

23.—This feature must be considered as furnishing a striking improvement in Life Assurance, as it removes one objection, which has hitherto existed;—viz. the necessity of either sacrificing afterwards at considerable loss, or of continuing, a policy, which is sought for merely temporary accommodation, and which, it may be, subsequently, on that account no longer desirable, or from the pressure of temporary pecuniary difficulty, convenient to keep up.

24.—Many illustrations of its efficacy might be given, but the following examples will, perhaps, suffice :—

1. Suppose a gentleman in the army, having effected an assurance upon his life in time of peace, to be required afterwards to enter upon remote or active service. If he wish to avoid an increase of premium, and be in the full confidence of his health, he may prefer at once to give his policy to a younger brother or friend, at the death of whom the amount assured would be paid; and yet he may retain to himself, by mutual agreement, some interest in the policy so transferred.

2. Suppose a creditor to have effected an assurance upon the life of a debtor, as collateral security for a loan, which is afterwards paid off, so that the creditor has no longer any interest in keeping up the policy; or, suppose a person to have borrowed money on mortgage from a private individual or a society, and to have assured his life, so as to secure his family from liability for the debt, in case of his decease before he has paid it off; in both these cases, the *Transfer* principle would be at once susceptible of advantageous application, as the power of transfering the assurances from their own to other lives, would allow of the policies becoming serviceable to other parties for similar commercial purposes; and the premiums paid by the original assurers would, thus,

not be entirely lost, when their desire to keep the policies up, for their own respective benefit, had ceased, as the assurers on the substituted lives would find it advantageous to pay an equitable sum for the transfer.

25.—If deposit policies were insured by the agency of Savings Banks, the Transfer privilege could easily be adopted. The party, whose life is to be substituted, being of not greater age, would attend at the Bank to be examined by a medical officer, appointed for that purpose, to whom he would pay a fixed small fee, and who would endorse on the back of the policy :—*The Life of ⸺⸺ may be substituted in the within policy.* Whereupon the depositor would put his endorsement : — I *transfer this policy to the above-named* ⸺⸺ .

The transfer principle would make a deposit policy as negotiable and transferable almost as a bank note ; for it would be—

       1°. Paid up, and free from future charge.

       2°. A certain portion of its amount would be with-drawable at short notice by the holder.

       3°. Its full amount would be receivable by the holder, at the death of the life originally assured, or (if a transfer had occurred), of the substituted one.

The Substitution or Transfer could be renewed as often as the policy changed hands, if substitute and healthy lives could be found of not greater age. * The Society, or Savings Bank, would, clearly, be benefited by every fresh life being substi-tuted after careful medical examination, as the vitality of the policies would thus be renewed. In ordinary assurances this is not the case. If once a life is accepted, and it subse-quently deteriorate in health, the office cannot escape the risk, provided the payments be duly continued.

* In a separate publication, which will shortly appear, will be found Rules for the formation and government of Friendly Societies, or of Benefit Assu-rance and Investment Societies, embodying this and other principles.

The Half-premium System.

26.—In many modern offices a plan is adopted, thus ex-pressed :—" Half the annual premium on whole life policies may be kept unpaid for the first seven years, provided 5 per cent. interest be paid in advance." This accommodation is, in many instances, a great convenience, both to persons whose means are likely to increase, but who, temporarily, are unable to keep up the payments to the whole extent, and, also, spe-cially in the case of policies in connection with mortgages, as, during the first seven years, (the term, perhaps, of a mortgage) the payments are nearly as moderate as in a short term or temporary policy, and, at the end of the period, if the policy be still required, it can be continued without renewed evidence of health still being good. It is to be understood, that, if, in the first seven years, the assured die, the balance of premiums in arrear would be deducted from the claim paid to the holders of the policy; and, if he survive the seven years, then, to keep up the policy, the original whole, or full, premium, would have to be paid for the future, whilst the arrears of the seven half premiums could either be liquidated at the close of the seven years, or stand over to be deducted from the policy at death, provided the assurer pay interest annually thereon, or agree to the accumulated amount of compound interest being deducted, with the arrears, when the death occurs. This system is now very generally in use; but we desire to caution the directors of companies against misconception of the advantages, which their institution may derive from it. They should understand that they cannot allow its application : —1st. unless the half premiums paid, added to the interest on the half premiums in arrear, exceed, on the average of seven years, the rate payable (see Table 3, page 52) for a seven years'-Term-policy. Hence, referring to Table 2, we see that assurers, on the *profit* scale of the society to which

those tables refer, alone should be allowed the half premium
privilege.

27.—The principle would, of course, be most advantageous
to high-rate societies, but not equally safe or desirable for one
proceeding upon a system of low premiums.   By Table 2,
page 51, up to age 54, the system may be continued with but
one limitation, that " Half the premiums are to be withheld
only for *seven* years at interest, on the understanding that
after that period, the whole premium shall be payable, with
interest at 5 per cent. on the arrears until they are liqui-
dated."   As an example, let us refer to the case of a life,
aged 25 next birth-day, effecting an assurance for £1000, on
the profit rate of Table 2.   His proper payment, (at £2 2s.
per cent.) would be £21 a year, instead of which he is
allowed, during the first seven years, to keep back half of
each premium—viz. £10 10s., provided he pay 10s. 6d.
interest on each accruing arrear.   He, thus, has a whole life
policy with little more cost for the first seven years than a
seven-years temporary policy by Table 3 would require ; and
to this is added the important option of continuing afterwards
his policy for the whole of life, whatever be the deterioration
in his health, encumbered, of course, with £73 10s. debt,
bearing £3 13s. interest, until liquidated, or an allowance
of *compound* interest, (instead of his paying interest annually)
to be deducted at death with the £73 10s. when the claim
is payable.   For the 8th and subsequent payments he would
revert, in addition, to the whole premium £21 a year.   If
the amount of arrears appear to the assurer to be heavy, he
has to remember that in the past seven years, instead of £147
he has only paid £73 10s., and whether he paid the amount
due, or was accommodated with an advance (or permission to
keep back premiums), his pecuniary position is the same.

28.—By way of caution, we would remark, that any Assu-
rance society to be secure should, at least, receive from each
member such a premium as, collectively, would pay current

claims and expenses, independently of affording reserves for the future ; and, strictly speaking, the system is only advisable and safe for a young society, where it possesses a sufficiently large protective capital, and where the privilege is allowed for a limited term of years, as seven or less. For a company with a small paid up capital to permit a longer extension of the half premium assurances would be analogous to a society transacting the ordinary business, but investing the greater part of its money in unavailable securities.

As an axiom of finance the directors of an assurance society are bound to invest only a small proportion of their funds, as from time to time received, in securities not readily convertible into cash. So acknowledged is this, that it is customary for Actuaries to take care that the amount invested in the public funds shall always keep pace with that laid out on land-mortgages or other similar security.

29.—Theoretically, and on paper, it might be made to appear that not only half the premiums, but even a larger proportion might be withheld for more than seven years, with increased apparent advantage to the society, from the higher rate of interest, at which the money would seem to be laid out, than that credited to assurers in the tabular calculations ; but the law of mortality is in operation all the time, and while the nominal assets of the society would appear to be in the most satisfactory condition, deaths would occur, and the actual available funds would not be sufficient to meet the claims to which they would give rise.

Such a business can, in fact, be only undertaken by young societies when they have a considerable paid up capital.

30.—One more remark in addition :—The half premium plan (although a convenience to the assured) does not give a young society all the advantage which it has a right to expect. It would only do so if 5 per cent. interest were the limit of the advantage that the directors could obtain from the investment of that portion of the society's funds,

which is not intended to be placed in immediately convertible
securities.   Such is, however, not the case.   For every £100
invested on land mortgage or similar security, an additional
policy of assurance can be obtained and a fresh source of
profit created.   A young society is therefore best off, when
receiving the whole premiums upon its policies, and so enabled
to lend out a portion to induce the effecting of new assurances.
Of this benefit, however, it is deprived by consenting to the
half premium system.   Nevertheless, to meet the public
requirements, we are of opinion that it should be adopted,
with the limitations previously referred to.

31.—Other new features may be briefly enumerated :—

1. *Whole World* policies can be effected, upon which the
assurer has not to pay any new extra rate, if he desire to go to
any part of the world, however unhealthy.   The question is
treated as one of *average*, and a small *continued* per centage,
only, is charged above the ordinary payments, in lieu of the
temporary higher rate of premiums usually required in such
cases.

2. *A diminution* of *half a year* may be made on the amount of
premiums chargeable, when persons come for assurance within
six months of their *last* birthday.

3. Policies are issued by one or two new companies with a
covenant, that they shall be *Indisputable* (when once the first
premium has been paid) whether obtained by fraudulent repre-
sentations or not.

4. *Combination* assurances may be obtained, whereby the
assurer can, simultaneously, assure the *life and honesty* of the
assured, or against his becoming unexpectedly incapacitated
by *accident* from earning his livelihood, or otherwise enjoying
the use of human faculties.—*(See page 43.)*

On the Indisputability of Policies.

32.—Respecting the *Indisputability* of policies, we would remark, that the concurrent testimony of the leading managers of assurance offices is in support of the adoption of some more complete contract between the companies and their assurers, so as to make policies more marketable when held as security for loans, and more certain as family provision.

On this head, a careful writer, * Mr. James, remarks, that,—" In the proper estimate then to be taken by the assured party of the risk undertaken by an office, he must not fail to remember that, however scrupulous he be in the assertions he makes relative to his age, health, and habits, he has by far the most favourable position of the two interested in the contract. For a small sum paid down annually, and computed from the results of averaged and not of individual lives, he has the benefit of assurance of a comparatively large sum, payable at a moment, whether the event of his death be immediate or deferred. Nor as may be gathered from the stipulation already referred to, does his share of the responsibility end here. In making the preliminary arrangements, he is not only morally bound to observe that amount of good faith necessary to this as to any professional or commercial engagements, but he is *legally* and *absolutely* required to do so. The inviolability and strict performance of the contract on the part of the assured, and the receipt by his representatives of the promised benefit, wholly depend upon his own entire compliance with the principles of honour and candour. By a deviation from this course, how often have we seen innocent parties made severe sufferers by the folly of those who, when acting under improper or mistaken motives, have been thus the real means of entailing the most

* Treatise on Fire and Life Assurance, 1851.

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serious misfortunes on their families, which but the commonest
act of prudence or forethought might have wholly obviated.
By an attempt to avoid a less evil, the greater one is created.
Such is the facility now offered by all the respectable offices,
that where undisguised statements of health are made, the
payment of but a small extra premium is required, and an
unconditional risk accepted, all right to open the question of
existing disease or a tendency to its future presence, being
waived by the assurers.

" In the transaction of all kinds of business, however
trifling or important, there is one principle indispensably neces-
sary to its safe and successful conduct, upon which, in fact,
the whole system of our commercial relations must entirely
depend; that principle, we need hardly remind our readers, is
an observance of good faith one with another.

" The instances of disputed assurances to be found latterly
in the records of our law courts convince us, however, that
there is generally a lamentable and intentional neglect, on the
part of assured persons, of that degree of confidence and good
faith necessary to the inviolability of the mutual contract of
assurance; and hence we see exhibited a most culpable disre-
gard for the great moral and personal responsibility attached
to the assured, and difficulties entailed by them upon their
innocent and helpless survivors, which will, we trust, operate
powerfully on the minds of the public, so as at once and
completely to put an end to a course of conduct highly repre-
hensible and dangerous in the extreme; convinced, as all
reasonable and honestly-disposed persons must be, that a fair
and honourable explanation of all circumstances relative to the
health and habits of persons proposing to make assurances on
their lives, will be the best and only means of securing a
profitable and indisputable result."

33.—Lord Mansfield, speaking of the parties on whom de-
volves the duty of ascertaining the state of the risk in life assu-
rance, has given some heads for a rule in this matter:—" The

assured need not mention what the insurer takes upon himself the knowledge of, or what he waives being informed of: the insurer need not be told general topics of speculation;"—such as the nature of various climates as affecting the constitution and health of Europeans, the healthiness or unhealthiness of different trades or occupations, and the degree of risk attendant thereon from danger by accidents, or of the bad tendencies of particular courses of life.

With reference to matters coming within the knowledge only of assured persons, what is a fraudulent concealment or misrepresentation, depends simply on whether the matters were "material" to the consideration of the risk; this is a matter of fact to be ascertained by a jury : and if material, the consequence is a matter of law, and the policy is bad. This point has been ruled and carried into subsequent decisions. The materiality of the fact invalidates the contract; the knowledge of the fact by the person taking out the assurance, however (on another's life), not being material to influence the issue for trial.

The distinction between *misrepresentation* and *a non-compliance with warranty* is here defined by that eminent lawyer : —" Insurance is a contract upon speculation, and therefore the special facts, upon which the risk is to be computed, lie chiefly in the knowledge of the insured only. The insurer trusts in his statement, and proceeds upon confidence that he does not keep back any circumstances within his knowledge, to mislead the insurer into a belief that the circumstance does not exist. The keeping back, therefore, of such circumstances is a fraud, and the policy becomes invalid, although the suppression should happen through mistake, without any fraudulent intention, yet still the insurer is deceived, and the policy invalid, because the risk run is really different from the risk understood, and intended to be run at the time of the agreement.

" The question, therefore, must always be :—' Whether

there was, under all circumstances, at the time the policy was underwritten, a fair statement or a concealment—fraudulent if designed—or, though not designed, varying materially the object of the policy, and changing the risk understood to be run.'

" A representation is a statement of the case, not part of the written instrument, but collateral to it, and entirely independent of it ; and it is sufficient that a representation be substantially performed.

" Even written instructions, if they were not inserted in the policy, are only representations ; and in order to make them valid and binding as a *warranty*, it is absolutely necessary to make them a part of the instrument by which the contract of indemnity is effected.   If a representation be false in any material point, it will annul the policy ; and if the point be not material, the representation can hardly in any case be fraudulent."

There is no distinction better known to those who are at all conversant in the law of insurance, than that which exists between a *warranty* or condition which makes part of a written policy, and a representation of the state of the case.   Where it is a part of the written policy, it must be performed.

It is now usual to insert in the policy the substance of the statements made by the assured, or to refer to the written proposals and statements of the assured, whereby they are made a part of the policy, and to the truth of which he makes an admission.

" If an assured person represents facts to the underwriter or insurer without knowing the truth, he *takes the risk upon himself* (by so representing).

" The great question is, whether the representation was false, and that, in a material instance.   Fraud is found out by the materiality of the point.   To make written instructions binding as a warranty, they must be inserted in the policy."

The contract is equally void whether the misrepresentations

were made on the part of the insured, or of his agent, or of any other party concerned in his behalf about the insurance. And it makes no difference that the loss depends on other circumstances than those which the misrepresentation or concealment concerns, the contract is void.

34.—The general impression is, that all offices would find it to their advantage to declare their policies *indisputable*, and to cover the risk of fraud, which is not of frequent occurrence at present, by an additional per centage on the premiums; as in most cases of past litigation, the public have manifested unfairly their opinion against the office, however just their grounds of dispute, and in favour of the family or representatives of the deceased policy-holder.

The declaration of indisputability might lead to a material increase in the assurance by timid, but honest persons, who at present unnecessarily fear that, in a policy, they may be leaving to their families a lawsuit for a legacy. On the other hand, in an actuarial point of view, the increased risk to the company in case of fraud, might easily be made a question of *average;* provided more details, than are now considered requisite, were demanded before treating as complete the chain of evidence upon which the directors are to found their decision as to the eligibility of a life. Under the present system, with all the vigilance exercised by careful managers, there is some natural reliance upon the probable veracity of the referees nominated by the life; and this reliance has existence more especially in the case of policies required with speed for mortgage transactions. The nature of the extra caution required cannot at once be defined; and the difficulty will lie more with country than with town proposals, from the non-appearance of the former before the Board of Directors at the head office, where the skill and experience of the officers might be of service in detecting unfavourable symptoms, which might escape a local adviser. With an augmentation in the risk, it is possible that a slight increase might arise in the expenses to the office upon

each transaction, through the necessity of obtaining some additional independent testimony as to the *past* habits of life of the proposed assured, as an adjunct to the special medical examination by the company's own officer in the locality. At present the medical examination refers mainly to the state of health at the time of the proposal. The private referees give evidence as to his *past* career : but the principle of indisputability appears to demand concurrent and independent testimony upon that head, which could, probably, be procured from some person of standing, residing in the same locality.

35.—The increased expense, from the necessity of extended machinery, and the augmented risk from possible deception without the subsequent power of disputing, could, we repeat, be provided for by an additional and properly adjusted small margin on the premiums. The tables of offices are at present so moderate when compared with the benefits granted, as to bear an addition without creating any sensible obstacles to assurers ; and we do not hesitate to express our decided opinion, that a Proprietary office might well adopt, without delay, the principle of indisputability ; for against the increased risk, can safely be placed the probable profits from additional business. The position of a Mutual society, in which all the members partake of any loss through fraud or other cause, would be somewhat different, unless it be sufficiently old to have accumulated a Reserve fund for contingencies. We believe that details would be obtained through increased investigation, and additional facts would be elicited through independent testimony, which, at present, friendship may lead a private referee to conceal ; that these details might narrow the field of *acceptable* lives by suggesting hesitation in accepting them, is not likely, as, after all, the doctrine and practice of life assurance is essentially one of *average*, and the experience of offices discloses that *sound* lives will sometimes fail before their time, just as much as those which are considered doubtful.

The formidable objection, that the principle of indisputability may increase the disposition to fraud, can only be met, and it can in our opinion be met correctly, by viewing that contingency as one of great probability, and, as such, by giving to it its due estimation in fixing the degree of increase to the premiums, until a greater generality of adoption of the principle, and a more perfect system of evidence, subsequently proved the first increase to be in excess.

On the Mortality of Sound Lives.

36.—In the practice of life assurance, one element exists of more importance than would be imagined. It is the *tendency* of persons in *sound* health, and endowed with excellent constitutions, to expose themselves to premature decease, by imprudence and reckless neglect of ordinary caution in avoiding causes of illness and death. It is worthy of notice, that while the directors of assurance companies usually decline proposers whose constitution is imperfect, or entire organs are not unimpaired, yet they congratulate themselves on the accession of all assurers for whom the medical adviser will give a report of their being good lives. By this circumstance, the number of assurable lives is greatly contracted, and many persons, who, in the long run, do not die before their time, are debarred from the benefits of life assurance. So restricted a system is unnecessary, for, if a scale of increased rates were deduced from observations of an extensive average of each disease, and applied by a skilful medical officer as a guide in each particular case, then a large number of apparently impaired lives, we believe, might be assured, who would be found to yield a return less productive of loss to the society, than a similar number of strong persons (assured at the ordinary rates), whose self-security in the possession of health renders them indifferent and careless of precautions. The old saying, of " a creaking door lasting longer on its hinges," is, by the experience of assurance companies, found to be true.

Taking for instance the claims that have arisen in the course of the last ten years in one successful company, the proportion of deaths from imprudence and accident to those from natural causes, is as 1 to 2, all being accepted as sound and excellent lives.   A few of the causes of death may be mentioned :

1. The life of a young gentleman of fortune, and a magistrate for the county, residing upon his estate in Cornwall, was assured as one of three in a lease for £1000 ; his age was twenty-six, and the medical opinion was to the effect that he was a first-class life ; two years after the policy was issued, he caught cold in consequence of having neglected to change his wet clothes after returning from grouse shooting, and he died, after an illness of but few weeks.   The premiums paid were £42, and the policy was £1000.

2. Another fell into his tanpit and was drowned three years after insuring his life for £800.   The widow and children then received a provision, which had only cost £71 8s.

3. A young nobleman insured his life for upwards of £30,000 in various offices, by way of marriage settlement in case he should pre-decease his father.   He died within two years of rheumatic fever in consequence of exposure to cold.

The experience of most assurance societies furnishes similar sad records of the uncertainty of human life.   Mr. F. G. Smith, in an interesting pamphlet on the subject, narrates the following instances of premature decease, where life assurance had been of benefit :—

1. An eminent tradesman in Cheapside, who makes it imperative upon each of his numerous shopmen and clerks to insure his life to a small amount, some time since induced a neighbouring friend to effect an assurance for £2000—this friend *died within the first year* from typhus fever, and his widow was thus put in possession of £2000.

2. A young married man, in the medical profession, opened a chemist's shop in the suburbs of London, and was induced by his wife's friends to insure his life for £1000; shortly after this, the cholera made its appearance in the metropolis, and the party in question fell a victim to that disease.   The assets of the deceased were little more than sufficient to pay his creditors, and had it not

been for the insurance on his life, his widow would have been left destitute; as it was, however, she received from the office £1000.

3. A farmer, residing about ninety miles from London, having, by some accident, had his attention drawn to the subject of life insurance, one market day made a proposal for an insurance of £500 on his life, which, after the usual inquiries had been made, was accepted, and the insurance was effected. Singular to relate, during the carrying of the next harvest home, he was precipitated from one of his own waggons, by the horses starting forward while loading, and killed on the spot. His widow received £500, which enabled her to carry on the farm.

4. A young man having contracted marriage at the age of twenty-five, very prudently insured his life for £1000. At the age of twenty-nine he was unfortunately drowned in the endeavour to save his brother from a watery grave. In this case four annual premiums had been paid, which, according to the rates of the office concerned, amounted in all to £80, and his widow received £1000.

5. The life of a lady, within a few weeks of her confinement, was recently insured in an office in London for £5000; and she dying in childbed, the insurance company had to pay the above sum, having received only one premium.

6. A gentleman, reported in excellent health, belonging to one of the liberal professions, took out a policy of assurance for £1500 on his own life; and having taken a severe cold, ruptured a blood-vessel during a paroxysm of coughing. This occurred after two annual payments only had been made, and his family, of course, received £1500.

7. A gentleman having made a proposal for an insurance on his life for a considerable sum—and which the company, considering quite unexceptionable, readily accepted—called at the office, and paid the first year's premium; but, after completing the transaction, he had scarcely crossed the threshold of the door, ere he was seized with apoplexy, and almost instantly expired.

37.—We do not say that we would go the whole length of advocating the acceptance of *diseased lives* in the present limited extent of assurance transactions, and in the absence of any sufficient data, as yet, to serve as a guide in such cases;

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yet, we recommend to directors the re-consideration of
that numerous class of proposers, whose state of health and
occupations have subjected them to be denominated *delicate.*
A slight margin on the tables usual for healthy assurers would
render them productive of less loss and more profit than a
similar number of robust lives ; because they are less likely,
if taken to a sufficiently large extent, to give rise to such
aberrations from that law of mortality, assumed as true for
them, as the latter class do.   While delicate, or slightly
impaired, lives would be gradually and slowly failing from the
waste of their faculties in the course of that average of years,
for which the charge of premiums would provide, the hardy
and robust would present numerous cases of premature death
from fever and inflammatory causes, generally induced by too
good living ; too free indulgence (perhaps, not habitually) in
the juice of the grape, or fermented liquors ;—from accidents
attending manly sports and amusements ;—from careless neg-
lect of removing wet clothes, as in the case of the young
magistrate who died after grouse shooting ;—from sudden
change from heated ballrooms to the cold out of doors air,
without sufficient additional clothing ;—from damp feet ;—
from overstraining by feats of strength, and by numerous other
apparently trivial causes, whereby the strong man, confiding
and daring in his strength, is so soon laid low.   We urge,
therefore, that the field of assurance should no longer be
limited; that, inasmuch as life assurance is merely the result
of judicious money-measurement of the contingencies of
human existence, the system may safely be extended ; that
attempts should be made to determine a proper charge for
the general assurance of lives, however apparently they
may have departed from the assumed standard of average
good health.   If this were done, we should cease to meet with
aged persons, who tell us of their having been declined by
such and such an office when young ; whilst, on the other
hand, this and similar publications of the actual experience of

assurance companies in respect to premature decease among *sound* lives, may probably induce fathers and husbands to lose no time in coming forward and purchasing, while their health permits it, the benefits of assurance for their families.

On Life and Fidelity Assurance.

38.—Of our principle, for *combining Life and Fidelity Assurance in one policy,* we would remark, (in the words used in the " Treatise on Industrial Investment ") that the rates of contribution for Fidelity assurance may be ascertained from statistical data, which can be rendered as complete as the corresponding data representing the laws of mortality; and it is plain that the payments of an assurer might be so combined, that the amount of a share could be made payable, at the end of the given number of years, to himself or his family (*as in an ordinary life assurance policy*), if he continued honest ; at the same time that it might be made payable to his employer for the time being, in case he should, in the mean time, commit a breach of trust; in which latter case he himself would forfeit all claim upon the society.

Simple guarantee societies have been established within the last few years solely to obviate the defects of suretyship by private bondsmen, a practice which was found to be attended with various inconveniences and objections;—instances having constantly occurred in which persons of great respectability were obliged to forego excellent situations, from either the great difficulty of obtaining security, or a repugnance to place their relatives or friends under the obligations involved therein. A Fidelity society, commonly called a Guarantee society, undertakes, on the annual payment of a small sum, to make good, in case of default by fraud or dishonesty, any losses which may be sustained to an amount specifically agreed upon ; and, by such means, obviates the necessity for private sureties, as well as the obligations arising therefrom, which often prove as prejudicial to the best interests of the employers as to the employed.

To the employer the guarantee of such a society is much more valuable than the bond of any individual, inasmuch as it is not liable either to doubt or depreciation. In large establishments, both public and private, where the securities are numerous and the sureties often resident in many different parts of the country, and known only by repute, it becomes almost impossible to watch over their continued existence and solvency ; and cases of default have frequently occurred when, upon investigation, it has been found that all the sureties have been dead or gone away for many years.

By these means, security has been provided only for the fidelity of the employed ; but the plan of a Guarantee society is still defective, in consequence of its being considered virtually not to offer a sufficient discouragement to dishonesty. It has been felt that a pure fidelity policy, does not, even in point of morality, possess the advantage afforded by private suretyship, inasmuch as the son, to whose nature it would be repugnant, by his misconduct, to bring disgrace and ruin upon his relations or friends, might feel little anxiety as to the pecuniary loss inflicted upon a guarantee society. In other words, it is conceived that a disposition to fraud is not effectually checked,— the reflection arising, that as the rates of a guarantee society pre-suppose the existence of such a disposition on the part of, at least, one out of every two hundred of its selected assurers, the loss sustained by the society through such defalcation would be but the result of the " *average*."

In the Combination plan suggested, which would be equally applicable, if not more so, to a Life assurance or other Investment society, the subscribers, while satisfying the requirements of their employers in respect to their honesty and good conduct, would receive an additional stimulus from the reflection, that all their subscriptions would become forfeited in the event of their acting dishonestly. Hence, the greatest moral benefits might be expected, as the members of such an association would serve as a mutual check on each other. A new incen-

tive to honesty would be gained ; and while a sum of money would guarantee the fidelity of the invester, the mere fact of his admissibility to such an assurance would be a strong testimony to his character. At the same time various practical regulations would, of course, be requisite to secure the judicious working of this suggestion.

On Industrial Assurance.

39.—A sound practical writer on Life assurance, Mr. Bridges, remarks, that " A beneficial system for the poor labourer, whether in the church or the factory, would be obviously to receive from him a weekly or monthly premium, at the rate involving a share of profits, but, in lieu of such profits being assigned in bonuses, to accumulate the bonus fund, to meet the payment of premiums whenever the assurer, either from want of employment or sudden and unforeseen call on his resources, is himself unable to do so. And to make such payments of simple and inexpensive collection, and to facilitate accountantship, they should be fixed premiums of say one shilling, or any multiple of one shilling, per week, whatever the age at entry, each shilling securing at death, or at an advanced period of life, an amount varying with the entrance age. ' A groat a-day,' says Franklin, ' is the interest of £100 for one year :' so a groat a-day is the premium, at age 30, to secure twice a hundred pounds to a widow and family on the decease of the contributor, with a margin to eke out his payments, in case of sickness, accident, or misfortune, rendering him incapable of continuing the burden. In the hands of a paternal government, life assurance on such a basis might be made a national duty. And while every one may well exclaim against a tax upon the act of insurance itself (in the case of *fire* insurance, the tax is 200 per cent.) as a disgrace to the legislation of the nineteenth century, we believe that a graduated insurance tax to do away, in the next generation, with nine-tenths of the genteel pauperism we see around us, would

be much more willingly paid than any of those now pressing on us to meet the interest, never ending, still beginning, of the cost of Blenheim and Waterloo."

40.—The following are other instances where life assurance is peculiarly applicable :—

1. To Husbands and Fathers:—to ensure a provision, after their death, for their wives and children. (Tables 1, 2, 3, 4, pages 51 and 52.)

2. To Young Men:—to make a provision for *their old age* by the purchase of deferred annuities.

3. To Parents:—to ensure certain sums payable on their children *attaining* the age of 14 or 21, or at other ages, whereby the ready means for *starting them in life* may be obtained by a much smaller annual saving, than would be necessary were they to attempt to realize the the same sum by putting it in any other species of investment. Assurance companies charging a smaller sum as they take into account the chance of the child's dying before attaining the specified age. This kind of assurance is called an endowment, and can be effected by one single payment, or by a series of annual payments, or premiums, to be made until the child attains the specified age.

4. To Partners in firms:—*who, by assuring their joint lives on Table 4, page 52, can secure a sum payable at the death of the* first, *which will enable the surviving partner to pay off the claims of the* Widow *of the deceased upon the firm.*

5. To Minors,and to the Guardians or Friends of a person,who, at a certain age will come into the possession of property:— may obtain a security for advances made in the interim, by insuring his life until he shall arrive at the given age.

6. In the case of Post obits:—persons having issued *post obit*

bonds may realize their amount at the time they become payable, by insuring the life or lives on whose failure they become due.

7. To secure *the Return of Advances made for* Educating *and* Establishing *the younger members of a family in the world :—this is effected by assuring the life of a child educated, so that, should it die young, the parent may recover from an assurance company the money spent upon it ; if it live, there is a policy of a certain standing on its life, which may be continued in the usual way, and as it was begun at an early age, the annual premium would be small.*

8. To Creditors:—who, by assuring the amount due to them, can by a trifling outlay, secure a compensation for the loss which the death of their debtors might occasion ; and by the principle in a preceding article (9, p. 12) the policy would be fully secured.

9. To Borrowers:—to provide, in case of death, a sum to repay a loan. This is the usual way in which money is now borrowed on personal security. The borrower, say of £500, assures his life for £1000, and gives personal security, in the shape of three joint sureties with himself, for the repayment of the principal and the due payment annually of the interest at £5 per cent. on the money borrowed, with the premiums of the assurance.

10. To Possessors of Entailed Estates : – *who can bequeath provisions for the younger members of their families, by assuring suitable amounts on their own lives.* This is applicable to the nobleman who would preserve his domain unbroken for his immediate heir, and yet provide for the younger branches of his family by a proportionate economy in his establishment ; thus remedying, in one respect, the effects of the law of entail. Many *noblemen and gentlemen of large hereditary estates* have become insured in one office or other with this view,

and some adopt the salutary rule of making *an additional insurance upon the birth of every child*. To persons of rank who make a reserve from their revenue as a future provision for their dependants, life insurance is very useful, if only upon the consideration that it produces an effectual improvement of their money, which they are unlikely to accomplish so well themselves.

11. To the Expectants of property in Reversion:—to secure a portion, at least, to their families, should they die before they themselves enter into possession. (See *Table* 5.) This contingency being one of *survivorship* only, the payments required would be but small. For example: —A gentleman, aged thirty-five, entitled to property should he survive another, aged sixty-five, can assure £1000 by a payment of £15 10s. a year, receivable by his family should he die before the older life.

12. To parties who expect to receive sums of money should they live over a *certain* number of years, as for example:— A person aged thirty, is entitled to a share amounting to £1000 in the *Renewal Fine of a Lease*, which is payable at the expiration of three years from the present time. This share he would lose, should he die within that period. To secure his family against that loss, he has only to take out a *temporary* policy of assurance on his life for the three years, and by the trifling annual payment of £12 he assures the £1000; so that, should he die before the end of the three years, the office pays his family the £1000, and should he live, he will come into his share of the fine, the amount of which he will, however, have rendered safe from loss by his death, by an outlay of £36 altogether. (See *Table* 3.)

13. To parties having shares in Building societies *upon which they have obtained loans. Example :—A young man borrows £300 from a building society, to be repaid by monthly instalments during ten years, at the rate of, say,*

£42 a year. The money borrowed is invested in the purchase of a house, which is mortgaged to the society as security until the loan is repaid. Now, if this man die before the ten years are expired, unless his family can continue to pay the monthly instalments, the house will be seized for the remainder of the debt unpaid. It is obvious, then, that the borrower ought to take out a policy of assurance on his own life, so that his family may have, in the case of his death, wherewith to pay off the loan. He can effect this object with great facility, according to plans explained with the Benefit Building society *tables* (page 55).

14. The Holder of a Lease, which is renewable on payment of a certain fine, can, by a trifling annual payment, assure the necessary sum. Leaseholders *on lives* are specially interested in the very secure and advantageous manner, by which they can effect assurances, which will provide for the *renewal fines* in their leases, whether such leases are for *terms certain*, or contingent on the existence of *one*, *two*, or *three lives*.

In Leases depending on lives, on the failure of a life, the lease can generally be renewed by putting in another life, for which privilege a *Fine* is demanded. From the uncertainty of human life, the lessee is exposed to be called upon for such payment, before, perhaps, he is prepared to meet it (the death having occurred before he has put by the amount of the fine) ; this circumstance has often produced serious loss to the lessee, and in general there is no safer way to provide the money for the *fine*, than by a policy of assurance, effected for the suitable amount to be received at the death of the *first* or *last* of the lives, according as the case may be. Example: —The holder of a lease would have to pay a fine of £100, to renew it at the death of the *first* of two lives aged (say) fifteen and thirty-five. He provides for its

11

payment by an annual premium (on the Profit scale) of
£3. 11s. 11d., so that, should any one of the lives in the
lease die even the day after the first premium has been
paid, he will receive from the assurance society £100.
(See *Table* 4, page 52.)

The above has reference to the *renewal* of leases, but
in cases, where the lessee purposes to allow his lease to
run out, and is, nevertheless, desirous of having at the
death of the *last* of the lives, a sum of money, which
shall be of the same value to him as his lease was ;
all that he has to do is to effect an assurance for the
necessary sum to be received, when all the lives in the
lease in question are dead.

If the lease be on *three* lives the annual premium per
cent. would be very trifling.   Example :—£100 can
be assured payable at the death of the *last* of three lives,
aged, say, thirty-one, thirty-seven, and sixty-one, respec-
tively, by the annual payment of £1 5s. 6d.—In younger
lives the premiums would of course be less.

15. In most copyhold properties, on the death of the tenant,
his successor cannot be admitted except on payment of
a fine.   In many instances, the sudden death of the
tenant has put his successor to great difficulty in pro-
curing the required sum:—an assurance effected on the
life of the tenant, by himself or his successor, would
provide for this difficulty, and by a small annual outlay.
(See *Tables* 1 *and* 2, page 51.)

16. In cases of marriage settlement Life assurance may also
be particularly advantageous.—Suppose a gentleman,
twenty-six years of age next birth-day, be engaged
to a lady whose fortune is £3500, and that the whole
be required to be settled on her at their marriage, as a
provision for herself and children after his death, at the
same time, that it is deemed advantageous to give the
husband the use of a portion of the money to promote his

profession or business. Let £1000 be vested in trustees, and with the annual interest at 5 per cent. let them insure £2500 on the life of the husband. The remaining £2500 can be then placed at his command at once, as, at his death, his wife will still come into possession of £3500. (See *Tables* 1 *and* 2.)

41.—*The following Tables will serve as Illustrations of the Subject.*

<table>
<tr><td colspan="4" align="center">TABLE I.</td><td colspan="4" align="center">TABLE II.</td></tr>
<tr><td colspan="4">ANNUAL PREMIUM *for* ASSURING £100 *on a Single Life, for the whole continuance thereof, without Profits.*</td><td colspan="4">ANNUAL PREMIUM *for* ASSURING £100 *on a Single Life, for the whole continuance thereof, with Profits.*</td></tr>
<tr><td>Age next Birth-day.</td><td colspan="3">Premium.</td><td>Age next Birth-day.</td><td colspan="3">Premium.</td></tr>
<tr><td></td><td>£.</td><td>s.</td><td>d.</td><td></td><td>£.</td><td>s.</td><td>d.</td></tr>
<tr><td>16</td><td>1</td><td>11</td><td>2</td><td>39</td><td>2</td><td>17</td><td>8</td></tr>
<tr><td>17</td><td>1</td><td>11</td><td>11</td><td>40</td><td>2</td><td>19</td><td>6</td></tr>
<tr><td>18</td><td>1</td><td>12</td><td>7</td><td>41</td><td>3</td><td>1</td><td>4</td></tr>
<tr><td>19</td><td>1</td><td>13</td><td>5</td><td>42</td><td>3</td><td>3</td><td>1</td></tr>
<tr><td>20</td><td>1</td><td>14</td><td>2</td><td>43</td><td>3</td><td>5</td><td>0</td></tr>
<tr><td>21</td><td>1</td><td>15</td><td>0</td><td>44</td><td>3</td><td>7</td><td>0</td></tr>
<tr><td>22</td><td>1</td><td>15</td><td>11</td><td>45</td><td>3</td><td>9</td><td>1</td></tr>
<tr><td>23</td><td>1</td><td>16</td><td>10</td><td>46</td><td>3</td><td>11</td><td>5</td></tr>
<tr><td>24</td><td>1</td><td>17</td><td>10</td><td>47</td><td>3</td><td>13</td><td>11</td></tr>
<tr><td>25</td><td>1</td><td>18</td><td>11</td><td>48</td><td>3</td><td>16</td><td>8</td></tr>
<tr><td>26</td><td>2</td><td>0</td><td>0</td><td>49</td><td>3</td><td>19</td><td>9</td></tr>
<tr><td>27</td><td>2</td><td>1</td><td>3</td><td>50</td><td>4</td><td>3</td><td>3</td></tr>
<tr><td>28</td><td>2</td><td>2</td><td>5</td><td>51</td><td>4</td><td>7</td><td>1</td></tr>
<tr><td>29</td><td>2</td><td>3</td><td>7</td><td>52</td><td>4</td><td>11</td><td>3</td></tr>
<tr><td>30</td><td>2</td><td>4</td><td>8</td><td>53</td><td>4</td><td>15</td><td>7</td></tr>
<tr><td>31</td><td>2</td><td>5</td><td>9</td><td>54</td><td>5</td><td>0</td><td>3</td></tr>
<tr><td>32</td><td>2</td><td>6</td><td>11</td><td>55</td><td>5</td><td>5</td><td>4</td></tr>
<tr><td>33</td><td>2</td><td>8</td><td>3</td><td>56</td><td>5</td><td>10</td><td>9</td></tr>
<tr><td>34</td><td>2</td><td>9</td><td>7</td><td>57</td><td>5</td><td>16</td><td>8</td></tr>
<tr><td>35*</td><td>2</td><td>11</td><td>0</td><td>58</td><td>6</td><td>2</td><td>10</td></tr>
<tr><td>36</td><td>2</td><td>12</td><td>7</td><td>59</td><td>6</td><td>9</td><td>1</td></tr>
<tr><td>37</td><td>2</td><td>14</td><td>3</td><td>60</td><td>6</td><td>15</td><td>3</td></tr>
<tr><td>38</td><td>2</td><td>15</td><td>11</td><td></td><td></td><td></td><td></td></tr>
</table>

Age next Birth-day.	£.	s.	d.	Age next Birth-day.	£.	s.	d.
16	1	13	7	39	3	2	4
17	1	14	4	40	3	4	3
18	1	15	1	41	3	6	3
19	1	15	11	42	3	8	2
20	1	16	10	43	3	10	2
21	1	17	9	44	3	12	4
22	1	18	8	45	3	14	8
23	1	19	9	46	3	17	2
24	2	0	10	47	3	19	10
25	2	2	0	48	4	2	10
26	2	3	2	49	4	6	3
27	2	4	5	50	4	10	0
28	2	5	9	51	4	14	2
29	2	7	0	52	4	18	8
30	2	8	2	53	5	3	4
31	2	9	5	54	5	8	5
32	2	10	8	55	5	13	11
33	2	12	0	56	5	19	10
34	2	13	6	57	6	6	2
35†	2	15	1	58	6	12	11
36	2	16	9	59	6	19	8
37	2	18	6	60	7	6	4
38	3	0	5				

* EXAMPLE:—A person whose age is 35 next birth-day may assure the FIXED sum of £100, to be paid at his death, by an annual payment during his life of £2. 11s. 0d.

† EXAMPLE: A person whose age is 35 next birth-day, may assure £100 with the profits that shall accrue, to be paid at his death, by an annual payment during his life of £2 15s. 1d.

TABLE III.

Annual Premiums for Assuring £100. on a Single Life for One Year and for Seven Years.

Age next Birth-day.	Premium One Year.	Premium Seven Years.	Age next Birth-day.	Premium One Year	Premium Seven Years.	Age next Birth-day.	Premium One Year	Premium Seven Years.
	£. s. d.	£. s. d.		£. s. d.	£. s. d.		£. s. d.	£. s. d.
17	0 17 1	0 18 4	32	1 4 11	1 6 10	47	1 17 1	2 0 0
18	0 17 6	0 18 10	33	1 5 7	1 7 7	48	1 18 1	2 1 6
19	0 17 11	0 19 3	34	1 6 3	1 8 4	49	1 19 1	2 3 4
20	0 18 5	0 19 9	35	1 7 0	1 9 1	50	2 0 2	2 5 8
21	0 18 10	1 0 3	36	1 7 8	1 9 10	51	2 1 6	2 8 4
22	0 19 4	1 0 9	37	1 8 5	1 10 8	52	2 3 0	2 11 4
23	0 19 10	1 1 4	38	1 9 2	1 11 5	53	2 4 10	2 14 10
24	1 0 4	1 1 10	39	1 10 0	1 12 4	54	2 7 2	2 18 8
25	1 0 10	1 2 5	40*	1 10 9	1 13 2	55	2 10 2	3 2 11
26	1 1 5	1 3 0	41	1 11 7	1 14 1	56	2 14 0	3 7 7
27	1 1 11	1 3 7	42	1 12 5	1 15 0	57	2 18 10	3 12 5
28	1 2 6	1 4 3	43	1 13 4	1 15 11	58	3 3 3	3 17 10
29	1 3 1	1 4 10	44	1 14 2	1 16 11	59	3 8 0	4 3 8
30	1 3 8	1 5 6	45	1 15 2	1 17 11	60	3 13 2	4 9 11
31	1 4 4	1 6 2	46	1 16 1	1 18 11			

* Example:—A person whose age is 40 next birth-day, may assure £100 for one year, by the payment of £1. 10s. 9d.; and for seven years, by annual payments of £1. 13s. 2d.

TABLE IV.

Annual Premiums payable during the Joint Lives of Two Persons, for Assuring £100, to be paid on the Death which shall first happen of the said Two Lives, with Profits.

Ages.		Premium.	Ages.		Premium.	Ages.		Premium.
		£. s. d.			£. s. d.			£. s. d.
15	15	2 13 1	*25	25	3 7 1	35	60	8 10 1
..	20	2 16 2	..	30	3 12 0			
..	25	3 0 6	..	35	3 17 8	40	40	5 0 7
..	30	3 5 10	..	40	4 5 7	..	45	5 8 3
..	35	3 11 11	..	45	4 14 8	..	50	6 1 1
..	40	4 0 4	..	50	5 8 10	..	55	7 3 4
..	45	4 9 9	..	55	6 12 1	..	60	8 14 8
..	50	5 4 4	..	60	8 4 0			
..	55	6 7 9				45	45	5 14 11
..	60	7 19 10	30	30	3 16 8	..	50	6 6 10
			..	35	4 1 11	..	55	7 8 2
			..	40	4 9 7	..	60	8 18 7
20	20	2 19 0	..	45	4 18 4			
..	25	3 3 2	..	50	5 12 4	50	50	6 17 7
..	30	3 8 4	..	55	6 15 5	..	55	7 17 11
..	35	3 14 3	..	60	8 7 3	..	60	9 7 3
..	40	4 2 6						
..	45	4 11 9	35	35	4 6 9	55	55	8 17 3
..	50	5 6 2	..	40	4 13 11	..	60	10 5 9
..	55	6 9 5	..	45	5 2 3			
..	60	8 1 5	..	50	5 15 8	60	60	11 13 7
			..	55	6 18 5			

* Example:—£100, together with the profits accruing, may be Assured to be received on the death of either of two persons, aged 25 and 30 respectively, by an annual payment of £3. 12s. 0d.

SURVIVORSHIPS.—TABLE V.

Annual Premiums *payable during the Joint Lives of Two Persons, A and B, for an* Assurance *of* £100, *payable on the death of* A, *provided* B *shall be then living, without profits.*

Age A	Age B	Annual Premium (£ s. d.)	Age A	Age B	Annual Premium (£ s. d.)	Age A	Age B	Annual Premium (£ s. d.)	Age A	Age B	Annual Premium (£ s. d.)
15	10	1 6 6	25	70	1 2 9	40	50	2 2 9	55	30	4 18 0
..	15	1 5 10	..	75	1 1 9	..	55	2 0 3	..	35	4 16 9
..	20	1 5 1	..	80	1 0 10	..	60	1 18 0	..	40	4 14 9
..	25	1 4 4	30	10	2 0 7	..	65	1 16 3	..	45	4 12 0
..	30	1 3 7	..	15	1 19 11	..	70	1 14 9	..	50	4 8 1
..	35	1 2 10	..	20	1 19 1	..	75	1 13 6	..	55	4 3 2
..	40	1 2 2	..	25	1 18 0	..	80	1 12 8	..	60	3 17 10
..	45	1 1 6	..	30	1 16 9	45	10	3 4 9	..	65	3 12 6
..	50	1 0 10	..	35	1 15 3	..	15	3 4 1	..	70	3 6 7
..	55	1 0 2	..	40	1 13 10	..	20	3 3 4	..	75	3 1 4
..	60	0 19 5	..	45	1 12 4	..	25	3 2 5	..	80	2 16 7
..	65	0 18 9	..	50	1 10 11	..	30	3 1 2	60	10	6 11 5
..	70	0 18 2	..	55	1 9 8	..	35	2 19 6	..	15	6 10 10
..	75	0 17 7	..	60	1 8 7	..	40	2 17 3	..	20	6 10 2
..	80	0 17 1	..	65	1 7 7	..	45	2 14 4	..	25	6 9 4
20	10	1 10 1	..	70	1 6 8	..	50	2 11 0	..	30	6 8 6
..	15	1 9 5	..	75	1 5 8	..	55	2 7 6	..	35	6 7 6
..	20	1 8 7	..	80	1 4 9	..	60	2 4 1	..	40	6 5 11
..	25	1 7 8	35	10	2 6 10	..	65	2 1 0	..	45	6 3 6
..	30	1 6 9	..	15	2 6 3	..	70	1 18 3	..	50	5 19 7
..	35	1 5 10	..	20	2 5 5	..	75	1 16 0	..	55	5 14 9
..	40	1 4 11	..	25	2 4 4	..	80	1 14 5	..	60	5 9 2
..	45	1 4 1	..	30	2 3 1	50	10	3 18 10	..	65	5 3 0
..	50	1 3 2	..	35	2 1 5	..	15	3 18 2	..	70	4 16 6
..	55	1 2 4	..	40	1 19 6	..	20	3 17 6	..	75	4 10 7
..	60	1 1 6	..	45	1 17 7	..	25	3 16 7	..	80	4 5 7
..	65	1 0 8	..	50	1 15 8	..	30	3 15 6	65	10	8 4 3
..	70	0 19 9	..	55	1 13 9	..	35	3 13 11	..	15	8 3 8
..	75	0 19 0	..	60	1 12 3	..	40	3 11 9	..	20	8 3 0
..	80	0 18 3	..	65	1 11 0	..	45	3 8 9	..	25	8 2 2
25	10	1 14 10	..	70	1 9 9	..	50	3 4 10	..	30	8 1 4
..	15	1 14 2	..	75	1 8 7	..	55	3 0 5	..	35	8 0 5
..	20	1 13 4	..	80	1 7 4	..	60	2 15 11	..	40	7 19 1
..	25	1 12 4	40	10	2 15 3	..	65	2 11 4	..	45	7 17 1
..	30	1 11 2	..	15	2 14 8	..	70	2 6 9	..	50	7 13 4
..	35	1 10 0	..	20	2 13 11	..	75	2 2 9	..	55	7 8 0
..	40	1 8 10	..	25	2 12 11	..	80	1 19 2	..	60	7 1 10
..	45	1 7 8	..	30	2 11 7	55	10	5 1 2	..	65	6 14 5
..	50	1 6 8	..	35	2 9 11	..	15	5 0 6	..	70	6 5 3
..	55	1 5 8	..	40	2 7 9	..	20	4 19 10	..	75	5 16 8
..	60	1 4 9	..	45	2 5 4	..	25	4 19 0	..	80	5 8 5
..	65	1 3 10									

* **Example:**—The sum of £100 may be assured, payable on the death of a person aged 30 next birth-day, provided a party aged 50 last birth-day shall survive him, by the payment of £1. 10s. 11d. annually, only so long as both Lives shall continue.

By means of this Table, a person having a contingent life interest, depending on survivorship, may secure the certain benefit of it to his family, by a small annual payment.

42.—*Amount of immediate annuity granted for every £100
paid down.*

TABLE VI.

Age LAST Birth-day.	Annuity.			Age LAST Birth-day.	Annuity.			Age LAST Birth-day.	Annuity.		
	£.	s.	d.		£.	s.	d.		£.	s.	d.
20	4	18	7	51	6	19	4	66	10	15	8
25	5	1	11	52	7	2	3	67	11	4	3
30	5	6	2	53	7	5	7	68	11	13	7
35	5	11	3	54	7	8	11	69	12	3	9
40	5	17	4	55	7	12	9	70	13	6	3
41	5	18	9	56	7	16	7	71	13	18	2
42	6	0	3	57	8	0	10	72	14	11	0
43	6	1	10	58	8	5	3	73	15	4	11
44	6	3	5	59	8	10	0	74	15	19	4
45	6	5	3	60	8	15	1	75	16	14	10
46	6	7	3	61	9	0	8	76	17	12	1
47	6	9	4	62	9	6	9	77	18	10	0
48	6	11	7	63	9	13	3	78	19	8	0
49	6	13	11	64	10	0	2	79	20	6	3
50	6	16	6	65	10	7	8	80 &upwards	21	4	6

The following advantages can be offered to purchasers of
annuities.

    1. The annuities to be payable in two equal half-yearly
sums, the first payment being made to the annuitant
at *the end of six months* after the purchase of the
annuity.

    2. A person, purchasing an annuity and whose age is
more than six months from his *last* birth-day, can re-
ceive an annuity equal to the mean between the rates
granted at his age *last* birth-day and *next* birth-day
respectively.

43.—Many persons are averse to purchasing annuities,
because, according to the *old system*, the money once invested
in a company was *sunk for ever.* Two other improvements
can be adopted; viz :—

    1. Should the purchaser, after three years have elapsed
from the date of his annuity, desire to *obtain a loan,*

for temporary purposes, the Directors can at any time make him an advance on the security of the annuity-deed, deposited in the hands of the society until the loan is re-paid; an assurance for the requisite amount being effected on the life.

2. Or :—If, from a change of circumstances, the purchaser, after three years have elapsed, desire to *dispose of the annuity*, the society can re-purchase it of him on equitable terms, determined by the length of time the annuity has been in existence, and the state of health of the annuitant, at the time the annuity is offered for sale to the society.

Assurance for Borrowers in Building Societies.

44.—*The attention of shareholders in* Benefit Building societies and Freehold land societies, *should be turned to the plans of assurance, which are peculiarly applicable to the circumstances of those who have therein obtained loans.*

The high estimation in which *Benefit Building Societies* are now held by the industrious and provident public, and the very great number of persons who avail themselves of them for the purpose of borrowing sufficient money to complete the purchase of a house, or other similar investment, render it desirable that every means should be provided to secure the families of the borrowers from the inconvenience and loss, that would arise from their sudden death; since it is obvious, that although a man may during his life be able, with ease, to pay the monthly or quarterly instalments necessary for the liquidation of his debt, yet, should he die before the house is free from the mortgage, his family would, in most cases, find it a very heavy burden to continue the payments, without which the house would, probably, be sold at considerable loss.

Now, although it is certain that some Building societies will not be able, consistently with the Act of Parliament, to

terminate within the period specified in their prospectus, in consequence of the shares not having attained the necessary value; yet there can be little doubt that a society whose payments are regulated by the strict mathematical principles of interest, and whose affairs are managed with judgment, would not only be likely to close in the calculated time, but would probably, from the profits arising from fines and other sources, be in a position to terminate sooner.

With a view, therefore, to give the Borrower in a Building society the means of securing his family, by a comparatively small annual outlay, from the pressure of the debt, in case of his premature decease :— *Temporary policies of assurance can be effected on the life of the borrower, in amount equal to the loan, and for the number of years it has to run. Upon this principle, that, at the end of each year, the assurer shall be allowed to drop so much of his policy as is equivalent to the portion of the debt cleared off in the year, and pay, consequently, each year, a diminishing premium ; with the further advantage that, at the end of each year, a portion of the premiums, which have been paid on the dropped part of the policy (consistent with the risk incurred), shall be returned to the assurer.*

By a policy of this nature, the family of a borrower would always be sure of receiving from the society in case of his death, a sum in *ready money* which would suffice to pay off the remainder of the debt.

SPECIMEN OF RATES.

Annual premiums to assure £100 by a temporary policy.

Age.	For One Year.	Seven Years.	Ten Years.	Fourteen Years.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.
20	0 18 5	0 19 9	1 1 3	1 2 7
30	1 3 8	1 5 6	1 6 8	1 9 6
40	1 10 9	1 13 2	1 16 7	1 18 10

45.—*In some cases*, especially in the latter years of the existence of a Benefit Building society, the family of the borrower might possibly find the society unwilling to allow them to pay off the remainder of the mortgage, by a single sum, in consequence of the probable difficulty the building society would experience in obtaining a reinvestment for the money at the rate of interest supposed in their calculations. Should that be likely, another policy is recommended, *by which, in consideration of a fixed diminishing annual premium paid by the borrower*, the life assurance society *will undertake to pay (should he die prematurely) the monthly instalments, for which the house or property is liable, until the mortgage be cleared off*. This policy, called the Guarantee Temporary Annuity Policy, presents peculiar advantages, as it affords additional security to the Building society, and at the same time renders the family of the borrower entirely free from liability.

SPECIMEN OF TABLES.

GUARANTEE POLICY FOR FOURTEEN YEARS, by which an Annuity of £6. a-year, or 10s. a month is purchased, payable from the time of the death of the Assured, until the expiration of the fourteen years.

Diminshing Annual Premiums.	Age Twenty.			Age Thirty.			Age Forty.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
1st year.	0	14	0	0	18	9	1	4	6
2nd ,,	0	13	3	0	17	9	1	3	2
3rd ,,	0	12	6	0	16	8	1	1	9
4th ,,	0	11	7	0	15	7	1	0	3
5th ,,	0	10	9	0	14	5	0	18	10
6th ,,	0	9	11	0	13	3	0	17	3
7th ,,	0	9	0	0	12	0	0	15	7
8th ,,	0	8	0	0	10	8	0	13	11
9th ,,	0	7	0	0	9	4	0	12	2
10th ,,	0	5	11	0	7	11	0	10	4
11th ,,	0	4	10	0	6	6	0	8	5
12th ,,	0	3	9	0	5	0	0	6	6
13th ,,	0	2	6	0	3	5	0	4	5
14th ,,	0	1	4	0	1	9	0	2	3

GUARANTEE POLICY FOR TEN YEARS, by which an Annuity of £8. 8s. a-year, or 14s. a month, is purchased, payable from the time of the death of the Assured, until the expiration of the ten years.

Diminishing Annual Premiums	Age Twenty.			Age Thirty.			Age Forty.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
1st year	0	14	2	1	0	0	1	5	7
2nd ,,	0	13	0	0	17	5	1	3	5
3rd ,,	0	11	10	0	15	10	1	1	3
4th ,,	0	10	6	0	14	1	0	18	11
5th ,,	0	9	2	0	12	4	0	16	6
6th ,,	0	7	10	0	10	5	0	14	0
7th ,,	0	6	5	0	8	7	0	11	6
8th ,,	0	4	11	0	6	6	0	8	9
9th ,,	0	3	4	0	4	5	0	6	0
10th ,,	0	1	8	0	2	3	0	3	1

Example :—Suppose a party, aged 30, borrows in order to purchase a house, £300, at the commencement of a building society, which is calculated to close in 10 years, and whose shares are £120. He requires for this loan five shares, since £60 is the present value of the £120, and has to pay 14s. monthly per share, or £8. 8s. per year during the ten years, which, for the £300 loan, necessitates an annual payment of £42.

Now, if the borrower die before the ten years are expired, the house is liable to be seized for the remainder of the mortgage unpaid, unless his family can continue the monthly instalments;—but if he effect, at the same time with his loan, a temporary policy on his own life for ten years, securing the annuity of £42 a year, or £3 10s. monthly, payable in case of his death, from that event until the expiration of the ten years, his family is rendered free from any liability by a comparatively small annual outlay, which is as follows : viz.—

	£.	s.	d.
1st year's payment............	5	0	0
2nd ,, ...	4	7	1
3rd ,, ...	3	19	2

			£.	*s.*	*d.*
4th year's payment............			3	10	5
5th	,,	....	3	1	8
6th	,,	....	2	12	1
7th	,.	....	2	2	11
8th	,,	....	1	12	6
9th	,,	....	1	2	1
10th	,,	....	0	11	3

From this it is seen that if, for example, the party die in the 4th year, he will have purchased an annuity of £42 a-year, for six years, by four payments amounting to £16. 16s. 8d.

It is evident the principle of such assurances is the same whether the payments of the building society are 10s. a month during fourteen years, or any other amount ; and it matters not whether the loan be effected at the commencement, or in any other year of the existence of a building society.   All that a borrower has to consider is the amount of his mortgage, and the number of years he expects it will run over; with these facts he can go to an assurance society, and be informed what premium and what amount of policy will suit his purpose.

46.—The guarantee annuity policy might be purchased by *equal* in lieu of *decreasing* annual payments, which would be nearly corresponding to the average of the rates above given ; but, for the reasons assigned in Art. 195, of the " Treatise on Industrial Investment and Emigration," the payment of equal premiums should only begin at the second year.

47.—To resume, we would remark with an able author before quoted, that the " theory of insurance, with its kindred science of annuities, deserves the attention of the academical bodies.   Stripped of its technical terms and its commercial associations, it may be presented in a point of view which will give it strong moral claim to notice.   Though based upon self interest, it is the most enlightened and benevolent form which the projects of self-interest ever took.   It is, in fact,

in a limited sense and by a practicable method, the agreement
of a community to consider the good of its individual members
as common.   It is an agreement that those, whose fortune it
shall be to have more than average success, shall resign, the
overplus in favour of those who have less.   And though, as
yet, it has only been applied to the reparation of the evils aris-
ing from storm, fire, premature death, disease, old age, (and
dishonesty), yet there is no placing a limit to the extensions
which its application might receive, if the public were fully
aware of its principles, and of the safety with which they
may be put in practice."

The foundation of every species of Assurance is the expe-
rience of the laws of average, and the object of every appli-
cation of the principle is to secure the benefit of the average
to the individual.   Hence, while nothing is more uncertain than
the duration of an individual life, nothing, it would appear, is
more certain than the average life of a generation.   In the
same age, and in the same country, it is true, the rate of mor-
tality may be affected by epidemics, scarcity of food, and other
causes, but these influences are speedily counterbalanced : an
intense vitality seems to succeed these periods of death, and
the aberrations from the recorded laws of mortality of one
period, are the measure of the counter-aberrations which mark
the period following.

48.—The safety of a society, professing to assure its mem-
bers against the loss attending any contingency, requires either
that the number of its members be so large as to provide for
all possible aberrations in the law by which the occurrence
of the assured contingency is supposed to be regulated, or,
that a protective capital be paid up, or ready at call, to secure
the society from inconvenience or chance of failure.   In ge-
neral such a capital is rarely paid up but in part, and the
protection consists mainly of the personal security of a num-
ber of shareholders collectively making themselves answer-
able for the engagements of the society.   Eminent writers,

judging from the difficulty which the older companies, with immense paid-up capitals, have experienced in making good interest for their money, have written against the effects of this circumstance, and imbued the minds of directors with a most mischievous tendency to neglect providing a sufficiency of paid-up capital in the establishment of new societies.

Such sentences as the following have been perverted by promoters, as an excuse for starting, recklessly, new institutions with scarcely more funds than would defray preliminary expenses. For example, a judicious authority says :—

"It may be taken as granted that an office charging premiums, * such as are commonly demanded, managed with prudence and economy, and successful in obtaining business, will not need any capital at all : firstly, because the premiums are such as must, in the long run, realise a profit after paying the expenses of management; so that the only use of the capital would be as a provision against extraordinary temporary fluctuations :—secondly, because a sufficient supply of business renders the probability of ruinous fluctuations extremely small, and altogether beneath consideration. Now, since it is well known that the premiums are sufficient, it follows that the only need which a commencing insurance has of capital is for safeguard against the early expenses of management, and against failure of business. The risk, however, at the commencement is not great in character, and small in amount ; and the quantity of risk diminishes so much faster than the amount increases, that it may safely be said there is nothing in the commercial world which approaches, even remotely, to the security of a well-established and prudently managed insurance office."

In the present day it is very difficult to procure for a new office a large capital, but in cases where it is proposed to

* Again he says :—"If the premiums were really too low, capital would be an injury, and not a benefit, for, since this capital is really paid for, in whole or in part, out of premiums, it would not preserve the office from insolvency, but would rather accelerate its progress towards bankruptcy."

insure some new and untried risk, a sufficient paid-up capital is essential. It is well known, that whatever pains may be taken in such a case to procure facts and deduce proper tables, there is always a risk that the experience of the office may be at variance with the facts of the tables. When, for instance, the general conclusions drawn from the mortality of towns were first applied to the insurance of life, it was a risk of unknown amount, as to whether the lives of those who would come to insure would be of the same class as those from which the tables were made. They might turn out better, or worse. The risk has been tried, and found to be in favour of the offices; but in another speculation, of another kind, the same species of risk might give a contrary result.

49.—For the well working of a new society it is requisite, therefore, that sufficient capital be *paid up* to defray expenses and contingencies for, at least, seven years; so that no delay or inconvenience may arise to check the business, from difficulty in making calls on the proprietors; but as, after a sufficient revolution of time, an assurance business will protect itself, provision should be reserved in the deed of settlement to re-move the incumbrance of the capital by returning it to the holders as soon as the state of the society's affairs will permit. This could be done very gradually and by inconsiderable withdrawals from the society's assets, if the capital, say, after fifteen years, were liquidated by a long annuity for some twenty years, calculated so as to give back not only principal and interest, but a bonus for the risk they have incurred.

50.—An excellent form of Protective or Guarantee capital for a new assurance society is suggested by the* *Tontine* principle. The capital to consist of paid-up shares held on the lives of nominees, and bearing dividends of interest and bonus payable every five years among the surviving stock-holders, the gross capital, and any increase from Reserve Bonus, going to the survivor; or, *by the Redemption Tontine* plan, if the capital

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* See chapter 2, part 2, of " Industrial Investment and Emigration," for an account of Tontines, and the profits attending that system.

and the dividends were accumulated for ten years from the commencement of a society, and then liquidated by a long annuity to last until all the nominees were dead, and divisible equally among the survivors, then, while the society was flourishing, the shareholders would be increasing in income.

The principles, remarks the late Mr. Milne, upon which Tontine* annuities should be calculated, are so simple, that any one can appreciate them.

One of the principal objections to Tontines of the ordinary form is, that the subscribers are always uncertain what income they may derive from them in any future year.

Euler suggested a plan upon which that and other objections may be obviated, while all the advantages of such schemes can be preserved.†

Euler supposed that the state which borrows, repays to the subscriber the interest only of the loan, so long as any of the nominees survive, and enjoys the absolute reversion of the principal after the decease of the longest liver of them; which is not equitable. But the principle upon which he calculated is very simple, and is easily adapted to the payment of an annuity, which shall discharge the whole debt with interest during the life of the last surviving nominee.

Adopting Mr. Milne's notation, let N be the number of

* [Suivant l'opinion commune c'est a Laurent Tonti, Napolitain, que nous sommes redevables de cette invention ingénieuse et utile; l'auteur la fit connoitre en France vers l'an 1663; mais l'établissement de la premiere Tontine n'eut lieu qu'en 1689, et elle fut suivie de celle du 1696: une classe de ces deux Tontines s'éteignit en 1726 par la mort de la femme d'un Barbier, âgé de quatre-vingt-seize ans, qui, moyennant 300 livres s'etait interressée dans ces deux classes, et qui lors de sa mort jouissait de 73,500 livres de rente. *St. Cyran, Calcul des rentes, premiere partie, page* 32.

† " *Eclaircissements sur les établissements publics en faveur tant des veuves que des morts, avec la description d'une nouvelle espéce de Tontine aussi favorable au public qu'utile à l'etat, calculée sous la direction de Monsieur Leonard Euler par Mr. Nicholas Fuss, à St. Petersbourg in* 4to." *The copy referred to by Mr. Milne was without date, in the Göttliche Ordnung of Sussmilch, it is stated to have been published in* 1775. *T. iii. s.* 470, *edit.* 1798, *being that which is always quoted in his work. Montucla states the date to be* 1781, *and the size* 8vo. (Histoire des Mathematiques, *T. iii, page* 423), *but in one of the statements Mr. Milne considers that he, Montucla, erred, probably in both.*

nominees in any class, s the sum subscribed by each, and v the present value of an annuity certain for the term at the expiration of which all the lives in that class will have become extinct; also let the middle age of the class be the same as that of A. Then will the number of nominees surviving at the expiration of n years be $\frac{na}{a}$N, and the annuity to be divided among them all will be $\frac{s}{v}$N; the sum to be paid to each survivor at the end of the nth year will therefore be $\frac{a}{na} \cdot \frac{s}{v}$; which, remaining always the same whatever N may be, it is evident that the borrowers may, without any probable gain or loss, engage to pay that sum at the end of the nth year, for every nominee considered separately, who is now of the age of A, provided he be then living.

As the nominees in such cases must be expected to be the very best of lives that can be chosen—persons whose situations and habits are favourable to longevity, and often such as are descended from long-lived ancestors—it may be prudent to assume that some of them will reach the age of 105 years, assuming also that the law of mortality among them will be such as it is represented in the Carlisle Table, and allowing interest at 5 per cent., if an individual be 40 years of age at the time of nomination,

Upon the Nominee attaining to the Age of	The Annual Sum payable for every £100 subscribed would be		
45	£5	12	1
50	6	0	6
55	6	10	0
60	7	5	5
65	8	15	6
70	11	0	8
75	15	16	3
80	27	15	10
85	59	10	5
90	186	10	5
95	882	17	4
100	2942	18	0

Hence it is easy to see nearly, what sum will be payable at the expiration of any year not inserted above. Tables of this kind may also be useful in showing subscribers to Tontines in the ordinary way, what they may reasonably expect from them.

The Moral Urgency of Life Assurance.

51.—The preceding articles will probably have sufficiently shewn that the benefits are considerable, which are derived, even as a mere matter of investment, from the application of the life assurance principle ; and a few words may be suffered on its Moral urgency, which alone affords earnest reasons why the system should be more extensively adopted.

It is needless to insist on that primary duty, which bids every man, both as a father and a husband, to promote the well-doing of his family, whilst he is alive to watch over them. With the exception of a solitary few, all men are conscious of its vital importance. It is a natural instinct or affection, intimately bound up with our existence, and often a source of intense pleasure. What we have rather to complain of, as deficient not in degree merely, but too frequently altogether, is that, perhaps, even more binding duty of providing for the *future* welfare of families. Of the uncertainty of life we need not say anything; for, notwithstanding the incredulity of some men in respect to themselves, the *Bills of mortality* bear unerring testimony to the possible destruction of their hopes. And how many families are dependent entirely upon the income of a parent. How many have been thrown into irretrievable confusion by his sudden indisposition ;—Or, still oftener, how frequently has his sudden death reduced them to the most abject misery, so that their bread has been "dipped into tears," and they themselves brought " to sit on the margin of the grave."

52.—It is true, many plans have been adopted by the more conscientious and thoughtful for the provision of their families. Perhaps they endeavoured to accumulate their savings by

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depositing them at interest in a bank, or they were laid aside
for the purpose of being invested in stock.   But nothing could
be more precarious than either of these methods.   There was
the apprehension of sudden sickness, or sudden death ; or their
savings might be interrupted by circumstances, sometimes
purely accidental, sometimes lying wholly in the conduct of
the parties themselves.   It was not unseasonably, therefore,
that the first *life assurance office* was established in England ;
for the advantages offered were immediate, evident, and most
important.   The great acquisition was this, that, instantly on
effecting his assurance, or completing his first payment, how-
ever small, the individual secured the full object of his wishes ;
should he die at any moment after, his family would be
entitled to the *whole amount assured*.

53.—But it is remarkable, that, notwithstanding the manifest
increase of late years in the numbers of life assurance societies,
few individuals have, as yet, embraced the great advantage, to be
derived from them.   It has been ascertained that, out of the very
many families who are dependent entirely upon the mere *life*
income of a parent or a husband,—that, in fact, out of upwards
of thirty millions of people in the united kingdom,—not more
than two hundred and fifty thousand persons are assured, (ex-
cepting, of course, those who are members of mere benefit clubs,
which mainly provide against sickness); and a large number of
the policies effected in assurance companies are taken out merely
as security in matters of business, not as provisions for families.
Many reasons may be, however, assigned for this startling
fact.   There appears to be a very great ignorance not only of
the advantages which are afforded by the assurance system,
but even of the very existence itself of such institutions.
Even where there appears to be some knowledge, there yet
exists an amount of prejudice, which under the, now con-
sidered, too strict regulations of the more ancient companies,
might have been conceived, but certainly is not justified in the
present day, and is altogether unworthy of these enlightened

times. There are even a small party of silly *Illuminati* who view the system as irreligious, and consider it wrong to attempt to provide against the dispensations of Providence; but the feeling, which must be most taken into account, is that highly dangerous one of self-security,* which is so common—'all men think all men mortal but themselves'; and that equally prevalent antipathy among older people to consider such subjects as are connected with death. Doubtless this last-mentioned feeling, more than would be imagined, deters men from the assurance of their lives; they will not engage in any duty which reminds them of their end; and, ashamed of a way of thinking, at once mean and contemptible, they invent, to satisfy their consciences, all sorts of petty excuses for the evasion of it.

54.—We remember a case, which has always appeared to us a melancholy instance of the evil that may arise from the omission of the important duty which we are advocating. It is that of a young man, a clergyman;—though married, and having a family, he had still the resources of a good living, amply sufficient for the most varied requirements. To profound scholarship, and the inexhaustible riches of a fine intellect, he added all those kindlier qualities of the heart, which would make a man estimable. But his character had its dark side too; his ' dazzling virtues ' were not more numerous than his weaknesses. With thoughtlessness and irresolution he lacked sound judgment; and it is not surprising, therefore, that he often took that course which was positively hurtful. Among other things, he had deferred, from day to day, the carrying into effect a long contemplated intention to assure his life. Being in strong health, he was not sufficiently sensible of the precarious tenure of his existence; or of the common prudence of not leaving one day between the cognizance of a duty and the fulfilment thereof. This was the more unfortunate,

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* See art. 36, page 39, for remarks on the experience of assurance societies in respect to premature deaths among sound lives.

as he was destined to leave this world at a period when it is most precious; when, for his children, all was laughter, buoyancy, and happiness.   Of the solemn death-bed scene we will say nothing; yet, perhaps, he had quitted life with more peace, had he but provided for his family.

Need we wonder that, when, in after years, ' the proud man's contumely' had more than embittered the cold draught of poverty;—that, when, with the thousand natural ills which flesh is heir to, came the uncertainty of a precarious and toilsome existence, hard thoughts of that man fell even from the lips of his devoted wife? Need we wonder that, although gentle as any woman, yet she knew not how to repress at all times the murmurs of her children ? Need we add, in fine, an account of her anxious watchings, of her endless toilings, her wasting melancholy; how she wept and struggled, struggled and wept, and, at last, was laid by the side of him, whose thoughtlessness had been the cause of all her sufferings.

55.—The picture, we have here given, is not an imaginary case nor a mere outline, distinct perhaps, yet incapable of being filled up, it is but a solitary example of a system which is loaded with evils the most palpable and pernicious :— so pernicious, that thousands upon thousands, we might say, of men's children are daily bearing testimony to its unfortunate consequences ; but the most saddening point of reflection is, that, too frequently, the increase of their misery is in exact ratio with the extent of their merits.   As they are the most virtuous and the most amiable, so does the blow of sudden change from comparative affluence to penury fall the harder; and the more delicate the nurture of the children during the lifetime of their thoughtless parent, the more painful do they feel the pressure of their altered circumstances.   How much harrowing misery might be spared to the unfortunate, if every man, as a father and a husband, were not only *conscious* of the duty which he owes to his family, but determined also to put into *practice* every expedient that might promote the exercise

of it ; what a large mass of moral and physical suffering could be obviated.

56.—But it will be objected by some that the " times are bad;" and that they are ill-able to afford so considerable a sum as would be necessary for the assurance of their lives. We would reply, that, even supposing they are unable to assure for the sum of £1000, or £700, or £500,—cannot they, yet, secure £100, when this last can be obtained by the payment of little more than one shilling weekly ? A life assurance society is, in truth, adapted no less for the rich nobleman, than for the tradesman ; while the former may make use of its full benefits to create a provision for the younger members of his family, it need not be said how much both of benefit and of happiness may accrue to the latter in exchange for the payment of a few small sums weekly or monthly. Wives and mothers should see to it ; should reflect that no delicacy of senti-ment need stand in the way of that duty, by which the future welfare of their children can be so greatly affected. If unwilling to add to their expenses, or to urge the husband and father to greater efforts, let them economise from their weekly expen-diture ; let them lay by sums, however small, which may be appropriated to the completion of the desired object. Let those, who have but recently entered the married state, bear this in mind equally with others, who may be surrounded with a family. Let them remember, that the payments for an Assurance are so equitably graduated according to age on entry, that the earlier a man begins the discharge of this excellent duty, the less will be his future payments, and the easier the continuance of the self-imposed economy. The old man at sixty would have to pay £6. 15s. 3d. a year for the same sum which would cost but £4. 3s. 3d. a year to the man at fifty, or only £2. 4s. 8d. a year to that of thirty (see Table 1, page 51); and, where a participa-tion in the profits of the society is purchased, instances are frequent where the allotment of Bonus, applied to the reduc-tion of future payments, has, in policies begun when young,

almost reduced to nothing the subsequent annual cost to the assurer.

57.— All, therefore, whose incomes are wholly dependent on their personal exertions, or upon their continuing in existence, should neglect no longer to lay aside a sufficient portion, by means of which some provision may be created for the maintenance of those they may leave behind them. The wretchedness of a family, reduced from easy circumstances to a painfully necessitous condition, which even though not equivalent to starvation, may deprive the widow of the means of educating her sons and daughters ; of fitting them to earn their livelihood, and to contend with the competition of numerous others in similar positions,—that wretchedness, we repeat, can be prevented by, comparatively, so small an outlay, that the abstaining from a few indulgences would give the head of the family the means of meeting it. To our mind, nothing can be more selfish than the manner in which thousands in good employment neglect altogether the facilities, which the life assurance system would afford to them. There might be some excuse for the deficiency of a provident spirit, if the only accumulation, which could be secured to a man's family, in the case of premature decease, were simply the amount of the actual savings themselves which he had put by ; but, by the system of co-operation in question, he can secure not merely those savings, but the larger amount to which they would have accumulated in a long term of years.—Take the case of a man aged thirty, who lays aside £50 a-year from his income. Suppose him to die unexpectedly,—say, in three years. If his savings had been merely invested at interest, his family would receive little more than £150 ; but, if he had subscribed to an assurance company (the charge for which at age thirty is £2. 4s. 8d. per cent.) they would receive £2238, nearly. This example must speak for itself, but in the words of an able periodical devoted to the life assurance cause, we would add, that, ' although in the great number of instances

in which men fail to insure their lives as a provision for their
wives and children, the neglect arises from the difficulty of
withdrawing from a limited income even the small sum re-
quisite for the annual payment of premium, yet it cannot fail,
to occur to every person anxious for the welfare of his family,
that this very difficulty is the strongest argument that can be
advanced in support of life insurance. If a man whose income
arises solely from his exertions, or from any other source ter-
minating with his existence, finds the whole of that income
absorbed in sustaining his position in society, let him contem-
plate the dreadful situation of those who are dependent upon
his labours, when cut off, by his decease, from their sole means
of support. Who is there who would not abstract something
from his present enjoyments in order to protect a beloved wife,
and the affectionate offspring around him, from so frightful a
state of dependence upon the cold charity of the world ! When
it is considered, indeed, by what * small increments of saving
the means of insurance may be obtained, it is surprising that
any instance should exist in which it is not effected—a few
tavern visits less, an occasional mislaying of the key of the wine

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* For example :—The weekly payment for a £25 policy at age 36, would
be only 3¼d.

How thoughtlessly will a working man spend 3d. a day, and yet 4l. 11s.
per annum, which is equivalent, would assure to a man, aged twenty-five,
the sum of 230l. whenever his death might occur. By a similar payment,
a person aged forty-nine could secure to his widow or children the
sum of 112l., in like manner. By a resolution to forego any useless
luxury, costing 3d. a day, a young man aged 18 might secure to himself, on
attaining the age of 35, one hundred pounds! By a like saving, a person
aged thirty-five could in fifteen years become possessed of 62l., which same
amount would have been paid to his representatives had he died at any time
beforehand.—(See Tables of Endowment Assurance.)

A married couple, about middle age, by saving 3d a day, could secure to
the survivor of the two, upon the death of the first, upwards of £100;
or they might secure to a child of five years of age, a like sum when it
came of age.

An ordinary smoker consumes fully two pennyworths of tobacco per day;
but the sum thus spent in a useless habit, if applied in a proper manner
by a person at the age of twenty-five, would secure to him £105 on his at-
taining the age of sixty years or previous death.

cellar, a tight stopper in the spirit bottle, a water-side visit put off till next year, a party omitted to be given, a slight forgetfulness of the length of time a coat or a silk gown has been in wear, and a score other things of the kind, present an ample variety of sources for furnishing the small annual sum requisite to place a family in security.   Many men who have a strong perception of the importance of insuring their lives, unfortunately neglect to do so from the belief that in a little time they will be in a better position to do so—next year, trade may be more brisk, or an official salary may be increased, or an old aunt may die—but next year brings with it its own necessities ; and even if it did not, what peril is encountered in the delay ?   It should be borne in mind that people can only insure when they are in the most perfect state of health—a whitened tongue, or a quickened pulse, find no passport of admission to a life office ; and who shall say he is secure, for a single hour, from some derangement of system, that may bring these symptoms upon him.   What anxiety must he, who is waiting for the proper moment to insure, sustain at every incipient approach of illness ?   The spasm he feels may be the herald of cholera—the sudden ache in the temple may be the courier of death.'

58.—Again then we repeat, the insurance of life in all cases is wise—in many, absolutely necessary—in some, an imperative duty.   How many of our readers, who at this moment possess a comfortable competency, would, in the event of death, leave their families in a state of destitution !   How many family circles, the heads of which are in the receipt of a liberal salary, living in handsomely furnished houses, and keeping excellent tables, would by a single death, be suddenly deprived of all, and doomed to penury and wretchedness !   How many wives and children have exchanged their happy homes to become the inmates of union workhouses, from the neglecting of life assurance by that person through whose means they were enabled to live in comparative affluence !

PART II.

ON FRIENDLY SOCIETIES AND SAVINGS' BANKS.

Section 1.

Art. 59.—In the preceding part we have advocated the extension, upon proper principles, of the benefits of Life Assurance to the industrial classes as a subject well worthy of serious attention. Its importance cannot, in fact, be over-rated, for anything, which tends to inculcate provident habits among the masses of the people, must be an immense benefit to the community at large. We have said that while Life Assurance has, by means of the London Assurance Offices, been accessible for a long period to the upper and middle classes, these institutions have not, save in one or two recent instances, sought to do business of sufficiently small amounts to be within the reach of the more limited means of the industrious poor; nor have they undertaken to grant allowances in case of sickness.

60.—Working men of provident habits have thus been compelled to establish societies for themselves; and each individual, naturally enough, has become a member of whatever society has happened to exist in the immediate locality of his residence. This society has usually been a public-house benefit club—and associations of that description exist in almost every town and small village throughout the kingdom. Altogether they amount in number to many thousands, and profess to guarantee to their members allowances in case of sickness or of death, while they are founded, for the most part, on such erroneous data, and are constituted so unsoundly, besides being managed by persons deficient in practical experience, and often of equivocal respectability, that they have generally been found pro-

ductive of more disappointment than advantage to their un-
fortunate subscribers.

61.—We should state, at the outset, that a Friendly Society
is an association formed on the principle of Mutual Assurance.
Each member contributes a certain subscription per week or
month, as may be agreed upon, in return for which the society
undertakes to pay him a certain sum weekly in sickness, or on
attaining old age.   In addition to this, it generally agrees to
grant to his family a certain amount on his decease.   It would
be merely wasting words to expatiate upon the importance to
the working classes of such societies, when properly conducted.
They promote habits of forethought and prudence, they incul-
cate the wholesome truth that self-reliance is, after all, the only
real independence;* they collect, and might apply to the best
purpose, the earnings of the industrious and the savings of the
economical.

62.—We are met, however, on the threshold of the subject,

* [Poor Relief.—By a return recently made to an order of the House of
Commons, we find that in the 619 unions into which England and Wales are
divided, comprising 14,060 parishes, with a population of 16,273,694, 749,370
paupers of all classes were relieved upon the 1st July, 1853, as compared with
789,021 on the 1st of July, 1854.   This gives an increase of 39,651, or 5·3 per
cent. for the year ending the 1st of July, 1854.   In England there only two
counties which show a decrease—Durham of 579, and Rutland of 6.   In Wales,
however, there are five in which a decrease has taken place—viz., Anglesea,
of 373 ; Carnarvon, of 763 ; Glamorgan, of 297 ; Merioneth, of 55 ; and
Montgomery, of 22.   The total decrease in these seven counties is 2,096, which
deducted from the total increase in others of 41,747, gives the average increase
of 39,651, before quoted.   The increase of able-bodied paupers out this num-
ber is 14,461.   It further appears from the return that the total expenditure
for the in and out-door relief in all the unions for the half-year ending Lady-
day, 1853, was 1,665,978l. ; while for the half-year ending Lady-day, 1854, it
was 1,900,295l., being an increase of 234,317l., or 14·per cent.   Glamorgan is
the only county in England and Wales which can show a decrease in its ex-
penditure, it having expended in the half-year in question 22,700l., against
24,649l. in the corresponding period of the previous year—a decrease of
1,949l.   It is to be remarked that the parishes under local acts and the 43rd
of Elizabeth (except those acting under the accounts order of the Poor Law
Commissioners) are not included in this return.]

by the lamentable fact, that these societies have failed, and are failing, by thousands. This truth is admitted, though reluctantly, by every writer who has discussed the question. What causes such wholesale bankruptcy? Evidently it cannot proceed from the unattainable character of the objects for which Friendly Societies are established, and must therefore be attributable to defects in the means by which those objects are sought to be accomplished.

63.—It is our intention to pass in review the errors and requirements of existing societies, hoping to show how they may be changed, from sources of loss and disappointment to their members, into means of improving the condition and ensuring the independence of the industrious classes.

64.—The first defect to which we shall refer, is the *inadequacy* of the rates of contribution demanded from members. These rates have, apparently, in the majority of instances been calculated, not so much by a consideration of the value of the risks incurred, as by the desire to frame a scale of subscriptions, which from its liberality, would be sure to become popular. It must be obvious, however, that if a society sells for threepence a-week a risk which in reality should be rated at sixpence, bankruptcy is, sooner or later, inevitable. Nor is the case thus supposed by any means extreme or rare. Thousands of societies have, from time to time, existed, in which the contributions required from members have been ridiculously small in proportion to the benefit promised. Nor is the error altogether to be wondered at. What the proper rate of contributions should be is an exceedingly difficult problem, which only an experienced actuary can be expected to solve with accuracy. One element of difficulty is contained in the fact that the circumstances of Friendly Societies vary almost as much as their localities and names. They are, indeed, so dissimilar, that a table of rates which may be perfectly safe for one may be preposterous for another. Frequently, also, there is no means of ensuring that a rate, which, in the earlier years of the Society's existence might

be judiciously adopted, will not, as practical occurrences affect it, become entirely insufficient. The financial considerations influencing such societies are necessarily fluctuating, and their managers are unable to improve them, because they are deterred from seeking high professional advice from the great expense generally attending such a step.

65.—The rates, moreover, besides being *inadequate in amount*, have been *inequitable in principle*. It has been, and still is, a common practice to admit, as members of Friendly Societies, all persons between some specified ages, and to charge them all alike. Now, nothing can be more obvious, and nothing is more undoubtedly established than the fact that, year by year, the liability of every individual to sickness and to death becomes more imminent. If this were not already self-evident, the last Census returns ought to impress it, once for all, on the popular mind. Other things being equal, a man aged fifty is much more liable to fall sick, or to die, than a man aged twenty. Hence it is clearly unfair to the man at twenty to exact from him the same payments as from the man at fifty. Many working men understand this circumstance more thoroughly than they are supposed to do, and this is one cause why these societies are so frequently disruptured and dissolved. Let us describe a case, by way of illustration. A society starts, we will suppose, with three hundred members, all between the ages of twenty and forty-five, and all contributing the same sum per month—calculated after the *lowest possible tariff*—for the sake of the same benefits. For the first few years all goes on well enough; but, in progress of time, there is a cessation in the influx of new members. In the meanwhile, all the members have become older, and their numbers diminished by death or removal. The society, under such circumstances, presents but little attraction, and certainly offers no security to a young man contemplating the future. He perceives that the Average is against him, and, accordingly, inquires for a society composed of persons more nearly of his own age, even though it proceed

upon the same erroneous principle of making a fixed charge for members at whatever period of life they may have arrived. He easily discovers what he is in search of, for in these times of competition new societies are starting up nearly every day, and he can immediately identify himself with such an association. Should it appear prosperous, those members of the older society who happen not to be above the maximum age, very quietly transfer their membership to the younger, leaving their more aged associates to shift for themselves. These poor persons, staggering under the weight of augmented years, struggle on for a time; but the claims of the sick increase; the funds perpetually diminish; the contributions daily becoming smaller, and the disbursements greater; and at length, finding it hopeless to attempt carrying on its career, the society is abandoned. Many, who had trusted to it for relief in the decline of life, are now entirely disappointed, and naturally regret that they had ever joined in such an undertaking. The supporters of the new society in their turn become older, and, in due succession, are supplanted by others still more new, which drain off their means of prosperity, and leave them high and dry, just as they in their earlier days had left their comrades.

66.—These circumstances demonstrate that the promoters of Friendly Societies entirely forget one element essential to success. It is impossible to secure a just average without a large body of members. The splitting up into five or six societies of a number of persons scarcely sufficient to form one of a moderate extent totally destroys all prospect of fair average results. No Society with a small number of members can be looked upon as safe, even though its tables may be founded on the most orthodox law possible, or on the brilliant scientific data of the mere statistical actuary; for should its experience turn out worse than the average, its fate is sealed.

67.—And here let us digress to a subject collaterally con-

nected with this, which it is necessary to touch upon before proceeding further. When a table is adopted for use, the next point is, as far as may be practicable, to prevent fraud. All experience shows that one main obstacle to the prosperity of a " Sick-allowance" Association is the facility offered for fraud by feigned prolongation of sickness after a member has passed the stage of inability to return to his work. There is abundance of evidence, in fact, to prove that the majority of the statistical returns with respect to Friendly Societies do not afford a true guide to the actual Law of sickness prevailing among the classes to which their members belong. This may be demonstrated by the simple, though striking circumstance, that a given number of persons of any particular occupation, who are members of a Sick Benefit Society, will be found to experience a higher rate of sickness per annum than an equal number not having joined such an institution.

68.—It is further ascertained that members of a society "lay up" unnecessarily when suffering from trifling ailments, because they know that the sick allowance is accessible for the support of their families. They are thus induced to yield to the temptation of indolence, and the principle of Friendly Societies, so excellent in itself, becomes a source of evil.

69.—It is obvious, therefore, that any Law of sickness derived from the experience of Friendly Societies should be distinctly denominated " Friendly Societies' law of sickness," and it is plain that the higher or lower degree of moral rectitude prevailing in any particular locality, whether agricultural or manufacturing, and the greater amount of supervision exercised by the Committee of management, will tend to produce a variation from any assumed standard in the rate of sickness experienced by a particular society.

70.—But the great defect of Friendly Societies as ordinarily constituted consists in the *inefficiency of their management.* Among numerous proofs of this fact it may be mentioned how clumsily the books are kept, and how full of blunders they

frequently are. Yet few matters are of more importance to such associations than correct book-keeping, since it is quite possible for a society to be ruined by defective accounts alone. The importance, too, of promptly investing the funds as they are received, does not appear to be sufficiently understood, although all tables pre-suppose that a moderate rate of interest, at least, will be continuously realised upon the subscriptions. If, then, this interest be *not* realised, the actuary's calculations are falsified; the society deceives itself, and the members are disappointed. On this important subject we would refer the reader to our Treatise on Industrial Investment and Emigration, (2nd Edition, p. 43.)

71.—Again, another circumstance, though not perhaps an actual cause of the failure of Friendly Societies, is, nevertheless, productive of a vast amount of mischief. We allude to the common practice of holding meetings at public houses, which, in the Treatise above quoted, we have said cannot be too severely condemned as being in direct antagonism with the prudential purposes for which Friendly Societies are instituted. It draws persons desirous of saving money into the very place where there is a temptation to spend it. They invite economy into the very temples of dissipation and extravagance. They ask men to be prudent within the reach of those influences that seduce them into riot and waste. On this subject the following judicious remarks occur in a letter from the agent of an assurance office. He is referring to the introduction of life assurance among the men employed in the extensive works of which he is manager. " My only fear is that the men are so addicted to drink that we may get many black sheep unawares. They join in their public-house clubs by hundreds, but it is a pity they have not got a club apart from such places, as they spend even more than their subscriptions when they go to ' pay club' as it is called."

72.—This state of things is truly lamentable, and we need not wonder that, under such circumstances, innkeepers look upon

Friendly Societies as valuable auxiliaries. Cases could be mentioned in which five or six societies hold their meetings at the same public-house, the grand object apparently common to them all being the especial benefit of the host. As, however, in these times almost every town and even village can furnish suitable places of meeting, such as national school-rooms, &c., there is every facility for carrying out measures by which the adoption of public-houses, as places of resort for the meetings, could be at once and for ever discontinued.

73.—It would be desirable that the societies should be sufficiently *extensive in their operations* to merit the attention, and secure the services of men of experience and standing as Directors and officers. We are aware that, even under the present system, the clergy and gentry do often manifest great interest in the welfare of Friendly Societies in their immediate neighbourhood, and we are also fully prepared to admit that the admission of men of education and station as Honorary members sometimes introduces a benevolent and protective watchfulness, which tends to establish relations of almost affectionate regard between men, who would otherwise, by the differences of social position and fortune, be entirely separated, and assists in preventing that feeling of hostility or mistrust, with which working men too often regard those who occupy places above them. Moreover, in a pecuniary point of view, the donations of honorary members, by increasing the receipts, without augmenting the disbursements, add to the benefits that may be afforded by the association, as well as to its prospects of permanent stability.

74.—Nevertheless, we are clearly of opinion that the interest, which the higher classes should have in a Friendly Society, ought to be of a more direct and substantial character than honorary membership would involve. It is, in fact, desirable that their contributions should not be in the shape of Donations, but Investments. The less a society relies upon accidental and

uncertain sources of income, and the more it proceeds upon strict business principles, the better will it be for its members. It should more nearly resemble in its constitution and objects the Metropolitan Assurance Companies, and should take rank as a Provincial Assurance Office, with such a Guarantee Fund paid up at the outset, as would be a safeguard against contingencies, and a guarantee for good management. This fund should yield to the subscribers a fair rate of interest, and should afford to the gentry of the district an opportunity of investing a portion of their surplus incomes profitably, while it should at the same time enable them to assist in promoting a highly laudable cause.

75.—With this view, the following clauses were, at our suggestion, introduced in July, 1854, by Mr. Fitzgerald, the member for Horsham, into the Friendly Societies Bill, which was then in Committee.—(The word *Debenture* being used instead of *Guarantee share.*)

76.—"Any Friendly Society already, or hereafter to be established, may, for the purpose of forming a permanent guarantee and expense fund, issue from time to time such a number of paid-up Guarantee shares not exceeding the sum of £5 each, as the Actuary to the Commissioners for the Reduction of the National Debt, or an Actuary of some Life Assurance Company, established five years at least in London, Edinburgh, or Dublin, shall by writing under his hand certify as being safe and proper; such shares to be in the form set forth in the schedule to this Act, and the total amount of the money to be received on account of such shares, together with such other monies as may be mentioned and provided for by the Rules of the society, shall form a fund to be applied exclusively in defraying all expenses and charges of management, and in aid of the funds of the Society, in the event of the moneys received on account of any particular fund or benefit not being sufficient to meet the claims thereon; and in

case the said fund shall be applied for any other purposes than
those hereinbefore mentioned, every person so misapplying the
same shall be personally responsible for the repayment of the
amount so misapplied."

77.—"All such Guarantee shares shall be registered in the
books of the society issuing the same, and shall bear interest
at the rate of £3, 5s. per cent. per annum, which shall be a
first charge on the funds of the society, and such Guarantee
shares shall not be chargeable with any stamp duty whatever,
and may be transferred by indorsement to any other person,
and the holder of every such Guarantee share shall be entitled
by way of bonus, to such a part of the profits of the society
as the rules may provide, and as shall be approved of by such
Actuary as aforesaid ; but such Guarantee share shall not be
paid off except in case of the dissolution of the society, and no
trustee, or other officer of the society subscribing a Guarantee
share shall be individually responsible for the payment of the
same."

78.—In order, further, to enable societies which are in an
unstable condition to secure their members some portion of the
benefits desired, the following clause was also introduced:—

79.—"Any Friendly society, or any Life Assurance Com-
pany, may, with the assent of, and upon such terms as may be
approved by such Actuary as in this Act mentioned, contract
with any Friendly Society whatever, to take upon themselves
all or any of the liabilities of such Friendly Society, and there-
upon any member of such society, or person claiming through
or on account of a member, in case of non-payment by such
society of any moneys agreed to be paid to or on account of
such member, shall have the same remedy against the con-
tracting society or company, in case the benefit assured to, or
liability incurred on account of, such member, shall have been
undertaken by such society or company, as if such company
was a society established under this Act, and the deed of such

company had directed that the dispute should be decided pursuant to the provisions of the Acts in force relating to Friendly Societies."

80.—It may be desirable here to explain that the Friendly Societies Bills of the last and the present session have had for object the consolidation of the laws relating to Friendly Societies, and at the same time the introduction of such legislative improvements as experience has shown to be necessary. It is obvious that some step of the kind is imperatively required, for the process of legislation upon the subject has for years past been so experimental in its character, that it has often been a matter of extreme difficulty to determine what were the exact provisions of the existing laws. There have been Acts to *consolidate*, Acts to *amend*, Acts to *explain*, Acts to *continue*, and Acts to do we know not what else; and these various Acts have all contradicted each other in the most remarkable manner. The case was even in 1854 considered so desperate, that it was deemed advisable to refer the new Bill to a Select Committee, in order that the details of the measure might be so perfected as to afford room to hope that the new " Act to consolidate" would render further legislation unnecessary, at least for many years to come. The Select Committee was accordingly appointed, which examined a number of very important witnesses; but, as usual in such cases, their Report was presented to the House at so late a period of the Session, that the carrying of an Act of Parliament embodying their recommendations was clearly out of the question till the following year. The clauses we have quoted above were brought under the notice of the Committee on nearly the last day of their sitting; the natural consequence of which was, that the members had not time to bestow upon them that amount of deliberation which we believe would have led to their adoption. We are, however, convinced that some such provisions are required before Friendly Societies can ever be placed upon a thoroughly

satisfactory basis.   It is not only as a safeguard against con-
tingencies, and as a protective fund to fall back upon,
that a paid-up capital is desirable—it is also, that it would
afford to wealthier and more educated persons an opportunity
of serving the Society, and would, moreover, introduce into
the management of their affairs that* knowledge and experience
which, as yet, has not been generally found in the conductors
of Friendly Societies.   It is on these grounds, that we pro-
posed that the capital should not be paid off except in case of
the dissolution of the Society, that we may retain by direct
pecuniary interest, during the whole of its existence, that care
and vigilance which would be as necessary in the last years of
a Society as in the first.

81.—To facilitate the development of these views, we have
drawn up for the *Friendly Societies' Institute,* a set of rules
(vide pp. 113—143) which are suitable for the establishment of
Provincial Friendly Assurance and Investment Societies.   The
aggregate of the clauses are so framed as to retain all those
features, which would make the establishment of Friendly So-
cieties desirable for the industrious classes, and to† exclude all

[* Mr. Farr, in an able paper published in the Appendix to the Twelfth
Annual Report of the Registrar-General, after pointing out the evils of the
existing Friendly Societies, proceeds very justly to remark that, " All the
successful business of this country is carried on by the co-operation of masters
and men, and the first evident objection to the benefit club is, that in general
it applies the dissociation of these two classes in a business as difficult as any
of the trades of the country ; in a business which is carried on by elaborate
tables, calculated by actuaries, involving the probabilities of life, funds accu-
mulating at compound interest, and the secure investment of money during
the whole life of a generation of men.   One of these clubs undertakes what
no large insurance society is willing to undertake, and without an actuary,
plays with the certified edged tools of actuaries."]

† [The Select Committee on Mr. Sotheron's Friendly Societies Bill took
evidence on the subject of child murder, alleged to be induced by the tempta-
tion of funeral money, and which the above clause was expressly introduced
to check.   They examined four judges, two governors of prisons, two coro-
ners, a chief of police, a chaplain of a prison, a registrar of births and deaths,
and a solicitor who had been engaged in a prosecution for child murder ; and

such as experience has proved to be objectionable. Provisions, also, have been introduced with respect to the investment of the Societies' Funds, which are in accordance with the extended powers that were conferred by the Act 13 and 14 Vic., cap. 115, and continued by 15 and 16 Vic., cap. 65, and are included in the Bill of the present session. The following are the objects for Friendly Societies, according to the Act 13 and 14 Vic., cap. 115. In the Appendix are given the objects as altered by the Bill of 1855.

" 1. For insuring a sum of money to be paid, on the death of a member, to the widower or widow of a member, as the case may be, or to the child, or to the executors, administrators, or assigns of such member, or for defraying the expense of the burial of a member, or of the husband, wife, child, or kindred of a member; subject always to the restrictions hereinafter enacted in that behalf:

"2. For the relief, maintenance, or endowment of the members, their husbands, wives, children, or kindred, in infancy, old age, sickness, widowhood, or any other natural state of which the probability may be calculated by way of average.

"3. For insuring or making good any loss or damage of

the committee came to the conclusion that the instances of child murder where the motive has been to obtain money from a burial society were very few (they had evidence of only four convictions in 13 years), and that it was not necessary to legislate specifically with a view to the prevention of that crime. The judges, however, urged upon the committee that it was not allowed to any person, rich or poor, to insure the life of another, unless he had a pecuniary interest in the continuance of such life, and that an insurance for burial-money is at variance with this rule, and, if permitted, ought carefully to be limited to the avowed object of providing for the child's funeral. The committee considered that the law requiring the payment to be paid to the undertaker is disliked, and is altogether illusory and inoperative ; in many cases no such person is employed. They proposed, as a better course, to limit the amount to be received, whether from one or more societies, and that a medical certificate of the cause of death should in all cases be produced.]

live or dead stock, goods, or stock in trade, implements and
tools, sustained by any member by fire, flood, shipwreck, or
any contingency of which the probability may be calculated by
way of average:

" 4. For the frugal investment of the savings of the members
for better enabling them to purchase food, firing, clothes, or
other necessaries, or the tools, implements, or materials of their
trade or calling; or to provide for the education of their chil-
dren or kindred: Provided, that the shares in any such invest-
ment society shall not be transferable, and that the investment
of each member shall accumulate or be employed for the sole
benefit of the member investing, or of the husband, wife, chil-
dren, or kindred of such member, and that no part thereof
shall be appropriated to the relief, maintenance, or endowment
of any other person whomsoever, and that the whole amount
of the balance due, according to the rules of such society, to
such member, shall be paid to him or her on withdrawing from
such society:

"5. For the purpose of enabling any member, or the hus-
band, wife, or children, or nominee, of such member, to
emigrate: provided that, in case of any society for that purpose
one of the trustees shall be a justice of the peace residing in
and acting for the county, borough, or place in which such
society shall be established:

"6. For any purpose which shall be certified to be legal in
England or Ireland, by Her Majesty's Attorney-General, or in
Scotland by the Lord Advocate, as a purpose to which the
powers and facilities of this Act ought to be extended:

"Provided always, that it shall not be lawful for any society
or branch established under this Act to assure the payment to
or on the death of any member, or on any contingency, or for
any of the purposes for which the payment of sums may be
assured under this Act, of any sum exceeding one hundred
pounds, nor any annuity exceeding thirty pounds per annum,

nor a sum in sickness exceeding twenty shillings per week:

A further limitation occurs in clause 3 of the Act, which runs as follows:—

"3. And be it enacted, that in all societies established under the provisions of this Act, or of any Act relating to Friendly Societies, it shall not be lawful for the trustees or other officers of such societies to assure a sum of money to be paid on the death of a child, whether a member of such society or not, under the age of ten years, except the actual funeral expenses, not exceeding three pounds in case of such child, to be paid to the undertaker or person by whom the burial is conducted, and whose receipt alone shall be sufficient discharge to the society, nor to pay any sum of money which may have been insured and become payable on the death of any member thereof, or of the husband, wife, or child of any member, unless the party applying for the same shall produce and deliver to the officer a certificate, signed by a physician, surgeon, apothecary, or coroner, in the form set forth in the schedule to this Act annexed, except in cases where from the nature of the circumstances it is impossible to procure such certificate; and if any officer of such society shall pay or cause to be paid any such sum of money as aforesaid, such officer shall be liable to a penalty not exceeding ten pounds, to be recoverable before any justice of the peace or magistrate of any borough where such society is established; and, upon conviction thereof, one half of the said penalty shall be paid to the informer, and he is hereby declared to be competent to give evidence in this case, and the other half shall be paid to the overseer of the parish in which the place of business of such society or branch is situated, to be applied to the relief of the poor therein."

82.—We would here remark, that it is not always desirable for a Society to include in its plan of operations more than one or two of the objects above enumerated. The most important points, to which the attention of Friendly Societies has

hitherto been directed, and to which it should still continue to be turned, are the provision against sickness, and the payment of a sum at death. The latter of these is, in fact, Life Assurance on a small scale; and the laws of mortality being well established, there is no reason why, with proper management, this branch of the business might not be transacted at a profit to the members. If provincial societies on an improved basis—such as we have suggested—were formed, we have no doubt this result would be achieved. Meanwhile, we would strongly urge upon the conductors of the smaller of the existing Societies throughout the kingdom, the importance of getting their Death risks underwritten by some respectable metropolitan Life Office. They would thus secure themselves against any undue pressure from excessive mortality, and would furthermore obtain, from time to time, through the London Society, the benefit of its Actuarial superintendence, in determining the sufficiency or otherwise of their contributions and funds, which in itself would be to them an advantage.

83.—It is, however, with regard to Sickness, that the greatest skill and care is required. The Law of sickness, notwithstanding the various attempts to discover it, still remains a mystery. This need cause no surprise when the difficulties of the subject are considered, and it is not to be wondered at that different enquiries should disagree so widely in their results. Sickness—unlike death—is not a broad well-defined fact about which there can be no mistake. There may be, as we have already observed in these pages, a *feigned* prolongation, or a lasting assumption of sickness, and the experience of a society with a lax management be thereby rendered much more unfavorable than it ought to be. This branch of Assurance has consequently found but little favor with the London Life Offices, for they could not possibly bestow that amount of vigilance over the "sickness" of members residing at a distance, which would act as a sufficient safeguard against fraud.

Section 2.

Art. 84.—The most difficult part of our subject is the determination of the processes by which the necessary amount of knowledge may be placed at the command of the conductors of Friendly Societies throughout the kingdom. The creation of a superior description of society, and the consequent introduction as members of a more educated class, would, no doubt, tend somewhat towards the accomplishment of the object in view, but much would still be required. If, indeed, the possession of a good set of rules and tables by a society were all that were necessary to ensure success, the matter would be simple enough. But it so happens, that neither rules or tables, however good, are of much avail, unless they are placed in the hands of persons who know, or are at least furnished with facilities for ascertaining how to carry them out properly and efficiently. Furthermore, it is important that, from time to time, the exact financial position of the society should be investigated —a process involving considerable labour and expense. This is, in fact, a prominent difficulty connected with Friendly Societies. We scarcely ever hear of a Society which institutes periodically any proper investigation into its affairs. Nor can this be wondered at. The members, individually, do not understand the importance of an investigation in the first place, and in the second, supposing them to be convinced of it, they would be deterred by the expense. Few societies, moreover, could afford to pay for a periodical investigation. The problem, then, to be solved, is how to bring the necessary legal and actuarial skill within the reach of Friendly Societies generally. It has appeared to some public men, that this might be accomplished by the agency of a Central institution, to which all societies, affiliated therewith, should pay a given annual sum entitling them to such information and advice as they might require. Accordingly some time ago* the 'Friendly Societies

* [In the recent Friendly Societies Bill, clauses were inserted to establish an unpaid Commission, but it was thought such a commission would be ineffective,

Institute' was founded, and for the information of those of
our readers to whom this Institution is yet unknown, we
would state that the chief object it has in view is to afford
information to the managers or members of societies formed
under the Friendly Societies' and other Acts affecting Indus-
trial Associations, supplying them with such particulars and
advice, from time to time, as may be useful or desired.   It
is presumed that if the co-operation of the individuals com-
posing a society of the above kind can be made to work for
the benefit of the members of that society, the co-operation
of the various Friendly Societies throughout the kingdom
in the support of a central institution can, in like manner,
be made to work for the advantage of the societies in
general, and of each one in particular.   The Friendly Societies'
Institute,* by being placed in communication with all the
existing societies, and receiving from time to time valuable in-
formation therefrom, is enabled to collect and employ that
information for the benefit of the general body.   The societies
are thus a mutual help to each other, and the results obtained
from the labours and collective experience of the Central Insti-
tution are available to each society at a small charge; and it is
believed, that when it is known that tables can be furnished,
rules prepared, calculations made, and advice given at the
Friendly Societies' Institute for a moderate annual fee, by the
aid of an establishment of subordinate skilled assistants, perma-
nently retained in its service, thousands of Friendly Societies
would avail themselves of its advantages.

85.—A general union of Societies, even with separate funds

unless its duties, powers, and responsibilities were fixed.   It must be obvious,
that a commission consisting of members of Parliament, would neither have
the practical knowledge of this most intricate subject, nor be suffi-
ciently regular in attendance (from the customary absence of members from
town during the recess), to be of real advantage, unless practical men were
also added to the commission.]

    * [Forms of application for admission to, or affiliation with the Friendly
Societies' Institute, will be found in the Appendix.]

and risks, would, moreover, permit of a member transferring his privileges of membership from one society to another, if his circumstances or affairs caused him to change the place of his residence. By way of illustrating this, suppose a working man, a member of a Friendly Society at Liverpool, were to obtain employment at Birmingham and meet with some accident or illness, which rendered it necessary for him to avail himself of his right on the sick fund. How convenient it would be if he could apply at Birmingham to some society corresponding to the one at Liverpool for his allowance. And such transactions would be likely to prove mutually advantageous to both societies, for taking an average number of transactions, it is probable that the society at Birmingham would have a corresponding application to make to the society at Liverpool for some member of their's sick at that town. We are aware that the rules of many societies allow of a member changing from one society to another, provided the first society pays over to the second the amount of his subscriptions and interest, or such a sum as an actuary may fix; but what we recommend is a mutual Agency system, whereby one society would assist the other in paying the allowances of those who might be sick, and in watching against fraud.

86.—We might proceed still further to point out the advantages which may result from the Friendly Societies Institute, but enough has probably been said to show the importance and value of such an institution. It may be worth noticing, however, in this place, that what the Friendly Societies' Institute is founded to attempt, the government of the French Emperor has already undertaken and with great success. We feel strongly tempted to quote from the able and exceedingly interesting official documents relating to this question which have been published by the French government, and introduced into England in our report to the Friendly Societies' Institute. We are convinced, however, that in England the preference would be given to a central Institution, which is not under

the control of the government. Englishmen are proverbially
averse to government interference, and we think we may safely
aver that a voluntary society, such as the Friendly Societies'
Institute, is more likely to answer its purpose than any govern-
ment department having the same objects in view.*

87.—It has been suggested by a Barrister of great experience
in Friendly and other Industrial Societies, Mr. William Tidd
Pratt, (to whom we are indebted for a careful revision of the
draft rules which are given at page 113), that a clause
should be inserted in the Friendly Societies' Act, authorizing
the *Trustees of the poor* in the various parishes of the United
Kingdom to defray the expenses of formation and management
of one soundly constituted Friendly Society in their districts,
provided they have a right of supervision or participation in
management.

Such an allowance towards the expenses would remove one
great difficulty that an Actuary has at present to contend with,
in settling the rates of Friendly Societies, as he has no means of
determining, *a priori*, what will be the proportion which the
future expenses of the Society will bear to the premiums con-
tributed by the members; and a theoretical margin based on
the experience of one Society is found not always to be a guide
to the probable expenditure of another.

As the funds of a *Parish Friendly Society* would have to
be applied solely in payment of the benefits assured by it, its
progress could be marked from year to year with greater
facility; whilst a positive diminution could be made in the

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* ["Having examined the returns of a great number of societies, many of
which we have had personally to report upon, we have recently compared their
statistical results with the Parliamentary Report of 1854, and we believe that
the tables deduced by Mr. Finlaison cannot be safely adopted by any society
without material adjustment, through the unsatisfactory manner in which items
of importance have been suffered to become mingled in the schedules that were
filled up by the Friendly Societies. Nor can any regard be paid to the inge-
nious theoretical law conjectured by Mr. Farr in the 12th Report of the Re-
gistrar-General."]

rates charged to the members, as from the practical impossibility of safe competition, the Society would be likely to absorb the members of the other Societies in the neighbourhood, more particularly of those which are conducted at public houses, or are under doubtful management. Hence we have no hesitation in saying that Parish Societies, by such an arrangement, would tend to realise the conceptions of those sound economists, who consider that the ultimate diminution of the poor's-rate depends on the increase of provident habits among the working classes, especially when they make provisions for the unavoidable necessities of their old age.

88. *Model Tables.*—Although we are impressed with the advisability of Societies adopting uniformity in their rules, principles of management, and forms of assurance, we cannot concur in the strong tendency which may have been observed both in most of the witnesses before the Parliamentary Committees, and on the part of the members towards the adoption of model tables of rates of contributions and benefits. Appendix A to the Report of Lord Beaumont's Committee, session 1847-8, paper No. 126, contains striking illustrations of the varying liabilities to which different Societies are subject; but the additional examples more recently brought forward are certainly very curious and remarkable, both in a scientific and practical point of view, and conclusively prove that nothing would be more dangerous to the interest of Friendly Societies that the adoption of Model Tables. It has been well said elsewhere, that there is nothing connected with the study of a statist and the profession of an actuary, requiring more judgment and experience than the proper discharge of the duties devolving on him in giving advice to Benefit Societies; and every day shows more clearly that the circumstances in which different Societies are placed are so dissimilar as to render the liabilities of one no criterion for those of another. Moreover, were it once understood that certain Model Tables might be

adopted by any and every Friendly Society, the Managers
would rely on the Tables *alone* for security. They would lose
sight of the fact, that prudence and economy in the manage-
ment of their affairs was still indispensable, notwithstanding
the guardianship of the Model Table, and thus Societies might
continue, as heretofore, to proceed rapidly on the road to ruin,
not discovering their error till it was too late to retrace their
steps.

89.—*On the Sickness and Mortality of Members of Friendly
Societies.* One of the requirements of the 9 and 10 Vic. c. 27,
was that all Friendly Societies enrolled thereunder, should send
in to the Registrar of Friendly Societies, a statement of the
sickness and mortality experienced during the five years
ending the 31st December, 1850. These returns were received
by the close of the summer of 1851, and "formed a huge mass
of papers; when bound up the collection made no less than
forty large folio volumes, each from six to seven inches in
thickness." The duty of reducing this vast mass of information
to a tabular form was entrusted to Mr. A. G. Finlaison, the
Actuary of the National Debt Office, who presented the results
of his labours to the House of Commons, in two reports, one
of which appeared in 1853, and the other in 1854. As there
are several matters touched upon in these reports which will
doubtless interest many of our readers, we propose to make a
few extracts from these valuable documents.

90.—The *general results* of the inquiry are stated as
follows:—

"The total number included in the Returns selected of persons
as liable to sickness was 792,980; of these 198,152 were returned
as sick. The number returned as sick out of each 100 persons
liable to sickness was 24·99. The average amount of sickness per
annum to each person included in the returns was 10·1155 days;
and the average sickness per annum to each person sick was
40·4809 days. So that, practically speaking, the returns show
that each member, young and old, of the Friendly Societies in

England and Wales, is very little more than ten days sick in the year; that one man in four is attacked with sickness in the course of the year, and that those who are attacked suffer nearly $40\frac{1}{2}$ days' sickness.

"The mortality is returned at 1·26 per cent. per annum only, while the exclusions are stated to be 3 per cent. per annum on the average. The rate of mortality is low, but it is confirmed by the experience of the Scotch and Irish Societies ; by official returns made from Friendly Societies in France to the French Government ; and by independent researches made by private persons among large numbers of the Societies of Odd Fellows, &c. It is to be remembered that the mortality set forth in this abstract is that which happened during the members' presence for the five years, or a portion thereof, in the Society, and does not, by any means, represent the mortality to which they may have been, or perhaps will be, subject out of the Society, previous to joining it, or after they may leave it. Other causes may be inferred from the high per centage of exclusions found to prevail, especially at the earlier ages. But, whatever be the reason, the mortality per cent. is the result of the deaths recorded and returned."

91.—On the subject of *Burial Clubs* the report thus speaks :—

"The results given in from the Burial Societies of England and Wales are very imperfect. In those clubs, the members' payments are so very low, being usually but at the rate of 1*d*. or 2*d*. per week, that their funds would not bear the extraneous expense of remunerating a clerk or secretary for the construction of a voluminous Return, which in some cases would perhaps contain an account of many thousand individuals.

"These societies are of more frequent establishment in the counties of Lancashire, Cheshire, and Kent, than in any other parts of England. It was found upon an examination of the Schedules sent in from Lancashire, that a considerable number of these societies admit members from the age of one month and upwards. The number present in eight of such societies in each of the five years, and the number of deaths were as follows :—

	Persons.		Deaths.
1846	12,153		430
1847	12,346		461
1848	13,075		379
1849	13,052		432
1850	13,572		337
Total	64,198		2,039

the mortality, therefore, being at the rate of 3·176 per cent. A
considerable number of Returns were also received from Burial
Societies in Kent ; but in none of these apparently, were children
under 14 years of age admitted. The number of persons in twenty
of such societies in each of the five years, and the number of
deaths were as follows :—

	Persons.		Deaths.
1846	6,143		105
1847	6,193		132
1848	6,014		112
1849	5,866		104
1850	5,721		102
Total	29,937		555

the mortality, therefore, being at the rate of 1·854 per cent. No
returns of sufficient importance to justify the trouble of further
compilation were received from Cheshire."

92.—The most important topic brought under consideration
in these reports, is the amount of *sickness* actually experienced
in these Societies. In the investigation of this subject, the
report divides the country into eight districts or "provinces,"
and gives the results for each. The most remarkable results
are stated as follows :—

PROVINCE.	No. per Cent. taken Sick.		Days of Sickness. to each Sick Person.
Northern ......minimum	19·89	......maximum	50·38
Welsh	22·14	....	45·73
Manufacturing	22·34	....	45·02
Midland ......maximum	29·29	......minimum	36·37

The report then remarks " that if the difference in susceptibility
to attack be most in favour of the north country, it is strikingly

reversed on the point of duration.   For the midland contributor to
Friendly Societies has but five weeks' sickness to the seven weeks'
illness, with which the northman is afflicted.   This bears out the
surmise of the lesser reluctance shown by the agricultural labourer,
to place himself on the " Sick List," as it is evident his attacks are
by no means of such a formidable character as those to which
the north countryman is compelled to succumb.

" In balancing the liability to sickness against its duration, it is
a merciful consequence of their mutually compensating effects that
the quantum of sickness to which each man throughout England is
liable varies but little, let his abode be in what province it may.
If he be frequently attacked, the complaint is of a less formidable
character ; and if the disease that hovers about him be virulent,
his hardy nature is such that it repels the evil for a greater length
of time.   Whether the sicknesses that visit the north be more
malignant, or whether the *nidus* they there find fosters more
greatly their venom, it is not within my province to hazard an
opinion.   I may, however, conjecture that their native intensity is
mitigated by the more careful habits of the south, although even
in this latter quarter there is yet room for improvement.

" But between the two classes of facts a consolatory balance is
established.   The average sickness of the whole year to each person
throughout England and Wales differs in its most violent extremes
but one day and a half.   The Returns give the case as follows :—

<div style="text-align:right">Average Sickness per Annum
to each Person, in Days.</div>

South-Western province	11·01
Midland	10·65
Welsh..	10·13
Manufacturing	10·06
Northern	10·02
Eastern	9·88
South-Eastern	9·66
Metropolitan	9·45

" The imaginations of enthusiasts in favour of the rural supe-
riority as regards exemption from disease, are not borne out by
the facts derived from the experience of the working classes of
society.

"For, contrary to most preconceived opinions, the place where the average sickness per annum afflicting each member of a club is at the lowest point in all England is the metropolis; while even the Northern and manufacturing districts also take precedence of three out of the five agricultural districts, and of provinces which previously would have been supposed incomparably superior. This is a matter, however, which comes home to the pecuniary stability of Benefit Societies, while the susceptibility of attack and the duration of the sickness chiefly concern the individual."

93.—In a subsequent part of the report, the trades and occupations of the members are arranged in four great classes, viz., light and heavy labour *without* exposure to the weather, and light and heavy labour *with* exposure to the weather, and the principal results are exhibited as follows:—

"When the sickness attendant upon labour under the four conditions in which it has been severally arranged is observed, some marked differences between the respective classes immediately attract notice. The first phase under which the contrast is exhibited has regard to 'the number returned as sick out of each 100 persons liable to sickness.' The adjusted results show the following per-centages:—

Ages.	LIGHT LABOUR.		HEAVY LABOUR.	
	Without Exposure to the Weather.	*With* Exposure to the Weather.	*Without* Exposure to the Weather.	*With* Exposure to the Weather.
20	22·70	23·71	26·47	28·69
25	19·90	21·04	25·10	26·47
30	18·51	19·64	23·45	25·74
35	18·49	19·02	24·00	25·64
40	19·40	19·88	24·34	27·01
45	20·49	19·33	25·14	28·14
50	23·07	20·74	28·10	29·34
55	25·63	21·93	31·40	31·11
60	28·36	22·87	33·25	35·42
65	32·80	24·84	38·26	40·25

"It would therefore seem to appear from the above, that, although exposure to the weather seems to exercise a less prejudicial effect on the *light* employments above 40 years of age, yet on the whole, and especially in the case of heavy labour, the liability to attacks of sickness at all ages, is greatest among those who are most exposed to the severity of the elements.

"Where the important practical question of 'the average amount of sickness per annum to each person' is involved, the results are equally well defined in the same direction. For instance :

Age.	LIGHT LABOUR.		HEAVY LABOUR.	
	Without Exposure to the Weather.	*With* Exposure to the Weather.	*Without* Exposure to the Weather.	*With* Exposure to the Weather.
	Days.	Days.	Days.	Days.
20	6·48	6·00	6 71	7·16
25	6·00	5·78	6·82	7·45
30	6·01	5·85	7·06	7·69
35	6·20	5·84	7·45	8·04
40	7·13	7·29	8·03	9·40
45	8·03	7·48	9·87	10·78
50	10·48	10 02	12·15	12·58
55	13·65	10·66	16·08	14·33
60	17·18	11·23	20·36	21·78
65	26·22	18·15	26·99	31·55

"The remarkable mitigation of the sickness in the case of the light labour *with* exposure to weather, as compared with the other three classes, at once attracts notice, and indicates the most healthy condition of existence. But the result of exposure to weather is not to be conclusively inferred therefrom by any means, as it would appear in the case of heavy labour to be an ingredient materially aggravating the quantum of sickness attaching to this ruder class of occupation. The agency of more powerful causes than the influence of the elements begins to make them perceptible in this arrangement of the subject.

"The third aspect in which the case has to be viewed is with

regard to the average amount of sickness per annum undergone by each person sick. The results are as undermentioned:

Age.	LIGHT LABOUR.		HEAVY LABOUR.	
	Without Exposure to the Weather.	*With* Exposure to the Weather.	*Without* Exposure to the Weather.	*With* Exposure to the Weather.
	Days.	Days.	Days.	Days.
20	28·53	25·30	25·37	24·97
25	30·16	27·47	27·19	28·15
30	32·43	29·80	30·09	29·89
35	33·50	30·70	31·04	31·37
40	36·74	36·66	32·97	34·80
45	39·21	38·71	39·28	38·29
50	45·43	48·34	43·25	42·87
55	53·26	48·63	51·22	46·05
60	60·57	49 11	61·23	61·48
65	79·96	73·07	70·54	78·39

" In this presentment of the case, the action of the degree of labour, or of the exposure to the weather, seems to disappear and manifest no influence. The only law or principle perceptible seems to be that immutable rule which pervades the whole observation, namely, the inverse duration of the sickness in proportion to its frequency of attack. It will be observed that the class engaged in heavy labour *with* exposure to the weather is most liable to attack out of the four divisions of employment, and is least afflicted in respect of duration.

94.—With regard to the connexion between *sickness* and *mortality*, the Report, after giving some Tables, shews that:—

" As the average amount of sickness has been shown to derive its increase more from the duration of the illness than from the frequency of the attack, and it is even more clearly evident that the mortality is in a constant ratio with the *duration* of the sickness, it is difficult to entertain the doctrine sometimes advanced, that the sickness and mortality of a community do *not* follow the same line of march. There is far greater reason for believing that they

advance together in line, when reference is carefully made to the
mass of facts marshalled in the columns appended to this Paper.
The inference that the two laws of sickness and mortality do not
of necessity run *pari passu,* has been drawn perhaps from the less
striking averages of the amount of sickness shown by each person.
But when the returns of the amount of sickness to each person
sick are carefully perused, the steady result of the mortality
correspondent at each age, shows that death is no remiss attendant
on the couch of real sickness. A contrasting glance at the columns
setting forth the number sick out of each 100 persons liable, in
other words, the probable liability to attack, proves, on the other
hand, that the 'grim feature' does *not* bestow his presence in
obedience to every casual invitation. But, as might be expected,
positive sickness and death in the great majority of cases, go hand
in hand."

95.—With regard to the *Sickness of Females and Children,*
the Report observes:—

"It is much to be regretted that facts relative to the sickness of
children and females were not obtainable in greater numbers from
the Returns of Friendly Societies, and that where information on
this point was supplied, it was of a scanty and unsatisfactory
character. There are nevertheless many funds existing for the
payment of allowances in sickness to or on behalf of children, which
have been formed among the Sunday and other schools in the
great provincial towns, and from the experience of these Friendly
Societies of a very peculiar class, it is to be hoped that data will
be forthcoming on some future occasion. In respect of the sick-
ness incidental to the female members of Friendly Societies, there
is much reason to believe that it is heavier in amount than that
undergone by the males But unfortunately mention was scarcely
made in the Returns of the nature of the occupation in which the
women were employed. And looking to the striking influence which
this consideration displays on the amount of sickness undergone by
males engaged in either class of labour, even still more remarkable
effects might have been expected to develope themselves in the
quantum of sickness undergone, by females engaged in various em-
ployments. It would also have been extremely interesting to

note, if possible, whether the difference existing between the con-
stitution of either sex presented any influence in relation to the
different amount of sickness undergone by the females, and at
what particular periods of life, and if there were, in fact, any
material excess of sickness really suffered by the weaker sex over
that undergone by the male during the period of working life, and
also during the 70 years' space elapsing after the age of 15, so as
to place them on unequal terms with the male contributors to
Benefit Societies.

"There can be no doubt that in practical experience the de-
mands made on the funds of the benefit clubs for allowances in
sickness are heavier when preferred by the female members.   But
this may result from two causes, namely, the greater difficulty of
searching examination where the delicacy of the sex is respected,
and the greater facility of simulation of any slight derangement
of the feminine system.

" The more precise determination of the amount of real sickness
undergone by the female members of Friendly Societies, therefore,
is still a desideratum.   It can only be brought about effectually,
perhaps, by the growth and encouragement of funds for allowances
in sickness which shall be formed for the benefit of females exclu-
sively, and in which careful record of the age, occupation, and
other necessary particulars, will be made in respect of each mem-
ber, and from which trustworthy statements of this information
can be obtained.   The distinction of sex also should be carefully
observed in framing any returns from School Friendly Societies
formed among children.   But in the absence of better data than
is now possessed in reference to the female sex, and to the very
youthful contributors to the above associations, there exist insuper-
able difficulties in the way of constructing Tables of contribution
precisely applicable to the amount of risk incurred.   It is to future
observation, therefore, that the community must look for the means
of more accurately providing those benefits in sickness which are
as requisite to the relief of the industrious females, and the parents
among the working classes, who may be suffering under a calami-
tous source of expense, as they are necessary to the wants of the
provident males of the same order of society."

Art. 96.—*On the proper method of obtaining Returns.*—
Mr. Finlaison, junior, deserves much credit for the elaborate
and skilful manner, in which he has prepared the Report from
which these extracts are made ; but the result of his calcula-
tions, although satisfactory in respect to the averages from the
whole body of returns, cannot be considered as worthy of
perfect confidence when he attempts to classify them under the
heads of 'light and heavy labour,' 'with and without exposure,'
and into towns, cities, and rural districts. The materials
furnished to him were not voluntary on the part of the
managers, and important items in the schedules sent round
were, in many instances, either wilfully or otherwise, misun-
derstood by them;* so that it is only for average results on the
aggregate of information, that positive errors and inaccuracies in
one society would probably be counterbalanced by negative errors
in another. The above fundamental difficulty in classification
throws a doubt upon the applicability of Mr. Finlaison's Tables
as a guide to the operations of local Friendly Societies. Mr.
Charles Ansell, F.R.S., whose experience on these subjects
entitles his opinion to great weight, made, by anticipation,
some sound remarks on this very point before the Lords'
Committee in 1848, when the expediency of requiring returns
from Friendly Societies was being discussed. He stated that
the Returns, in the form in which they were then demanded
from every society in the kingdom, were made carelessly, and
when they came, had no authority, and that it would be much
more satisfactory that information (to be used as the basis of a
model law of sickness) should be of a *voluntary character*, and
procured from but 100 or 200 societies, under such circum-
stances as would offer a guarantee for their correctness, rather

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* [Since the above was written, the Return, relating to another class of
associations, viz., Building Societies, has been published, which was moved
for by The Right Hon. Mr. Sotheron Estcourt. It contains a great variety
of palpable errors, evidently caused either by carelessness on the part of the
managers, or by a wilful misunderstanding of the questions ; so that the par-
ticulars furnished are rendered of very little value as a guide to the financial
condition of Building Societies.]

than that deductions should be attempted from an immense number of schedules filled up by the managers in obedience to a compulsory Parliamentary enactment; he considered that particulars, prepared voluntarily for the purpose of an actuarial valuation, would be more likely to be accurate in every detail.

The late eminent Actuary, Mr. Griffith Davies, F.R.S., and several others of great experience, who were examined at the same time, stated their full concurrence in the view of Mr. Ansell.

97.—*Definition of Sickness.*—In attempting to determine the Law of Sickness prevailing among the members of Friendly Societies, almost all investigations have produced unsatisfactory results, and presented discrepancies of a singular character, from the want of an accurate and uniform definition of wherein " sickness " consists.   As we have said in previous articles— the word " sickness," indeed, is itself rather unfortunate, as that which is medically so described is not the precise risk assured against by Friendly Societies.

What the members seek to provide for is " *temporary inability to labour*," whether arising from disease or accident, and whether necessitating confinement to the house or the sick bed, or only preventing the continuance of their avocations.   Now in practice it is found that certain degrees of ill health do not really produce immediate inability to work. Medical men affirm " that labourers, *who have not a Friendly Society to fall back upon*, often go about their employment with disease of the heart, tubercles in the lungs, and other disorders of considerable severity.   Among 120 Cornish miners in actual work, it was ascertained that only 63 had good health :—the remainder being all the time suffering from incipient serious maladies.   Among other classes of operatives, it has been also ascertained that, favoured by the inspector or foreman of the works, men really in bad health, *who have no sick money to draw*, do not always find it necessary to go on the sick list :— *i. e.*, their labour is mitigated without their stopping off duty."

98.—The theory adopted by Mr. Charles Ansell, in the inquiries set on foot by him about the year 1828, at the instance of the Society for the Diffusion of Useful Knowledge, does not, to a satisfactory extent, tend to the distinction of Friendly Society "sickness" from medical sickness, and probably this gave rise to the opinion expressed by him twenty years later, in 1848.—Other eminent Actuaries, in extensive contributions to the subject, have set forth the results of a variety of investigations, from which Tables are deduced, providing for "permanent" as well as "temporary" inability to labour. The data of such tables, however, were not confined to societies submitted for actuarial investigation, but, on the contrary, in one case, procured promiscuously from managers by a well intended offer of prizes. Hence, there was not sufficient security for accuracy in the materials furnished, since no result affecting any particular society could arise from them, as would have been the case had they been extracted from its books for the purpose of a valuation, upon which an Actuary was to found a report.—Mr. Finlaison, junior, convinced that some definition of Sickness must be adopted, states that, in making his calculations,—

"The cases of superannuation were carefully separated from the mass, and subjected each one to a rigid scrutiny, to determine whether it was a case of chronic sickness, or a case of superannuation, in the sense of a retirement on a pension for old age."

99.—The following *Definition of Sickness* in relation to the ' ability to labour' is given by a high medical authority :— all sickness, being either acute or chronic, recoverable or irrecoverable, no attack of acute *recoverable* sickness ever lasts longer than from six weeks to three months, and chronic recoverable sickness no longer than twelve months. Chronic irrecoverable sickness may therefore be held to be that which exceeds one year, or which a medical man from the nature of the case should certify to come under that denomi-

nation. On this point, the calculations of the Highland Society went to show that, in all ages under 70, 20 per cent. of the inability to labour was "bedfast," 50 per cent. "walking," and 30 per cent. " permanent."*

Section 3.

As to the True Law of Sickness.

Art. 100.—In accordance with the valuable suggestion of Mr. Ansell (mentioned in Art. 96), we have, in order to test the views taken by him, caused to be analysed the result of our own experience in connection with a great variety of societies, whose affairs have been officially laid before us or the Friendly Societies' Institute, taking care to limit the definition of sickness to the inability to continue labour, and comprehending under the denomination of "chronic," that which

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* [In further illustration of this, we give, from the investigations of Dr. Basham of Westminster Hospital on one form of disease, the following particulars:—

	Number of Cases of all Diseases, including Accidents.	Number of Cases of Paralysis of all forms.			Proportion per cent. of Cases of Paralysis to all Diseases.
		Males.	Females	Total.	
St. George's Hospital ...	20,646	255	166	421	2.0391
Westminster Hospital ...	15,653	—	—	274	1.7504
Total.............,....	36,299	—	—	695	1.9147

It will be observed that the number of males attacked with paralysis is to the number of females nearly in the proportion of 3 to 2. The *average age of attack* was as follows:—

Males - - -   40.470 or 40¼ years nearly.
Females - - -   38.000 or 38 ,,
Irrespective of Sex -   39.496 or 39½ ,,]

after a sufficiently long duration might and should be treated as irrecoverable.

101.—Our observations have led us to the discovery of what may be termed the *True Law of Sickness.* It would seem clear—and in this the table of Mr. Finlaison affords striking confirmation—that the degree of inability to labour at various ages follows a simple natural law, which may be expressed as follows :—

1º.—That, from about the age when infantile diseases are past, and the nature of the constitution of the individual is becoming more declared,—at age 15,—there is a certain *constant minimum rate of Sickness per annum,* to which human beings (on the average of a large number of lives) are subject at every period of life, and that this rate depends upon the race, climate, &c., and, as far as observations in the United Kingdom go, seems to be between the limits of *five* and *seven* days' sickness per annum.

2º.—That, at each age, every individual is exposed, according to his occupation, rank of life, &c., to

| An excess of sickness, over such constant sickness, | { increasing with his years and equal to | the sum of the excesses in the 5th and 10th years preceding. |

By way of illustration, in the class of labour referred to in the subjoined Table, the constant is $6\frac{1}{5}$ days, and the rate per annum of sickness

at age 20, $6\frac{57}{100}$ *days (nearly) or* $\frac{37}{100}$ *of a day excess over the constant;*

at age 25, $6\frac{60}{100}$ *days, or* $\frac{2}{5}$ *of a day excess over the constant.*

The excess, therefore, at age 30, is the sum of these excesses, or $\frac{77}{100}$ of a day. This, added to the constant, gives the rate of sickness $6\frac{97}{100}$ days : and so for succeeding years.

In the Mathematical Appendix at the end, we have shown that the preceding law may be expressed in another form, as follows :

| *The difference between the rate of sickness at any age and that 5 years below,* | equals | *the difference between the rates of sickness for 5 and 15 years younger than the given age.* |

For example .—

The difference between the rates of sickness for ages 35 and 30, } equals { *the difference between those for ages 30 and 20.*

102.—With this new law—the truth of which seems beyond dispute—societies, when looking at the probable sickness in the future, instead of relying upon the results of other associations, as set forth in published tables, for an estimate of what they might themselves anticipate, may correct it by a comparison with their own past experience : the only point to be guarded against being that, if they have had too low a rate of sickness in former years, arising from a favourable aberration, (which could be tested by a comparison with the standard table for their class or locality), they would have to make an addition to the probable rate during future quinquennial periods.

103.—*As to Recoverable Sickness.*—This law bears, in the case where Irrecoverable Sickness is *excluded,* a remarkably close relation to Mr. Finlaison's results, in the case of the "Average Sickness per annum to each Person in Friendly Societies, in England and Wales, adjusted by taking the average of each five years, for the middle year of each five." In the following Table, we have placed Mr. Finlaison's by the side, and it will be seen that it agrees within a decimal fraction :—

(Report of 16th August, 1853.   Tables, p. 3.)

Age.	By New Law.	Government Returns, 1853.
	Constant, 6.20	
15	6.23	6.21
20	6.57	6.88
25	6.60	6.83
30	6.97	6.91
35	7.37	7.14
40	8.14	8.21
45	9.31	9.34
50	11.25	11.49
55	14.36	13.95
60	19.41	18.73
65	27.57	27.36

* This Table includes the sickness of those that die under a year's illness, and of those that recover. Rates of subscriptions based upon it would not suffice to provide the allowances contemplated in clause 107 of the Rules (p. 138).—Similarly, if clause 108 be adopted, the subscriptions would vary according to whether it be intended, that the renewal of the allowance to a member, at the end of the 52 weeks' non-pay, should depend on his having gone through the stage of recovery, or only on his having had his pay stopped, although his illness had continued.

104.—*As to General Sickness, including Irrecoverable Cases.* The following are the corresponding rates of sickness according to the new Law, when all cases of inability to labour are provided for.

Age.	Average Sickness per annum to each person, in days.
	Constant, 6.20
15	6.38
20	6.88
25	7.06
30	7.74
35	8.60
40	10.14
45	12.54
50	16.48
55	22.82
60	33.10
65	49.72
70	76.62
75	120.14
80	190.56
85	304.50
	becoming permanent soon afterwards.

105.—*As to Rates of Premium.*—To determine the proper rates of subscription to be charged by provident associations,

* [Tables, suited for particular localities or occupations, can be obtained from the Corresponding Secretary of the Friendly Societies' Institute, Mr. E. W. Brabrook, who has assisted us with exceeding actuarial talent and skill in the labour of discriminating among the complicated elements, that enter in the tables and have rendered the numerical deductions very difficult.]

the question of Mortality has also to be considered ; but no law,
deduced from Friendly Societies' experience, can be depended
upon, for the reason laid down by Mr. Finlaison in his Second
Report, *viz.*, that numbers of members retire from each society
before death.   In all *mortality* Tables calculated from Friendly
Societies Returns, through a disregard of this fact, as Mr.
Griffith Davies said in his evidence in 1848, "man is made
almost immortal."   Hence, corrections have to be applied from
the returns of the Registrar for the general population.

It is evident from our Law of Sickness, that, considerably
more must be paid by each subscriber than the actual average
benefit received by him in the early years of membership.   In
other words, if 100 persons have together 600 days sickness in
the first year of their membership, their aggregate subscriptions
must be considerably higher than the 600 days' pay.   It is not
sufficient that the society should pay its way, and that the
claims for sickness should be not more than the total premiums
received, but a margin must remain to be invested as a provision
for future years.

Section 4.

As to the Rules of a Friendly Society.

Art. 106.—The set of Rules given in the following pages
(113—144) is designed to afford to Solicitors, Clergymen,
and others, who may be contemplating the formation, in
London or the provinces, either of large Industrial Insurance
Associations or small Benefit Clubs, a guide as to the principal
regulations which would be necessary, whether the association
be registered as a Friendly Society, or be made a Joint Stock
Company.

The main clauses of the Rules are also suitable for INDUSTRIAL
PARTNERSHIP OR TRADE SOCIETIES, substituting the corresponding
objects and benefits to be obtained by the members.

107.—*As, at first sight, the Rules* **may** *appear somewhat voluminous, we would explain that, in order to meet every possible case, a variety of regulations have been brought together, which, although necessary for a large general society, would not be all required by smaller institutions, associated in the form of a club for a particular object. In printing a comprehensive set, our desire has been to enable parties to select such regulations as may be necessary for the society they have in view, whether it be a Sick Club, a Provision for Old Age and Deferred Annuity Society, or one for the Assurance of Sums payable at Death.*

108.—*As to the necessity of completeness in Rules.*—To secure brevity, framers of the Rules of Benefit Societies not unfrequently leave out clauses, afterwards found to be of vital importance. We would, therefore, caution clergymen and others not to take for granted that they are perfectly competent themselves to frame the regulations required for the society, the establishment of which they are contemplating. However small or humble its purpose may be, great care in drawing up its provisions is of primary importance, and those, who endeavour to prepare rules for local clubs, should be cautious not to disregard the necessity of perfect legal accuracy and consistency in them as an aggregate, otherwise inconvenience and litigation are sure to arise hereafter in settling the rights of the members. Many instances might be cited of either loss to societies, or injustice to members, which has arisen from an ambiguous or erroneous wording of the clauses. It may be advantageous that the benefits offered should be few in number, but it is very unwise to suppose that it is equally desirable not to make the Rules so far complete,—without being too voluminous,—as may be requisite to secure their being fully suited for the perfect working of the society.

109.—As the Rules were printed before the passing of the recent Acts, some trifling alterations are necessary to adapt them

to the present state of the law ; and the reader will be pleased to substitute 18 *and* 19 *Vict.*, *c.* 63, and 21 *and* 22 *Vict.*, *c.* 101, for the 13 *and* 14 *Vict.*, *c.* 115, wherever the latter occurs in the Rules. The following are the most important new provisions :—

Rule IV. (As to Arbitration).—Under the 21 and 22 Vict., c. 101, s. 5, the rules of any society may provide that all disputes shall be referred to two Justices of the Peace, or in Scotland to the Sheriff of the County.

Rule VIII. (As to Investment of Funds).—By s. 32 of the Act of 18 and 19 Vict., the funds of the society may be invested upon any security whatever authorized by the rules, " not being the purchase of house or land, (save and except the purchase of buildings wherein to hold the meetings or transact the business of such society,) and not being the purchase of shares in any joint stock company or other company, with or without charter of incorporation, and not being personal security, except in the case of a member of one full year's standing at least, and in respect of a sum not exceeding one half the amount of his assurance on life, such member providing the written security of himself and two satisfactory sureties for repayment, and in case of such member's death before repayment, the amount of such advance, with interest, may be deducted from the sum so assured, without prejudice in the meantime to the operation of such security."

Rule XII. (As to Dissolution of the Society).—Sect. 8 of the 21 and 22 Vict., (1858) provides, that an agreement for dissolution shall be valid if, instead of stating the exact arrangements intended to be made, it refers the settlement of the rights of the members either to the Registrar, or to an actuary of five years' standing, whose decisions are to be final.

Sect. 4 of the Act of 1858, enables any society to change its name, with the consent in writing of the Registrar, and under s. 7, actions may be brought against any society in the name of the Secretary or any other officer. Actions brought by the society must still be in the name of the trustees, under s. 19 of the Act of 1855.

†RULES

OF THE

FRIENDLY SOCIETY.

ESTABLISHED————OF——————————18———

(*Pursuant to Act——and——Vict., cap.——*)

CONSTITUTION.

I. *Name and Object of the Society.*

1.—This society shall be called the _____
FRIENDLY SOCIETY, and is established for the purpose of assuring to
persons of both sexes, between the ages of ten and sixty (and in
special cases at more advanced ages), one or more of the following
benefits, viz., a weekly sum during sickness, with medical attendance
and medicine; an annuity commencing at once, or at sixty, sixty-
five, or seventy years of age; the payment of a certain sum at death;
and endowments for children, on attaining the respective ages of
fourteen, eighteen, and twenty-one, and for adults, at any specified
age; [*or other contingency.*]

II. *Date of Formation and Place of Meeting.*

2.—This society shall be considered to begin, and the first meeting
thereof shall be held, on _____ the ____ day of_____
185___, at_____ o'clock in the evening; at the first offices of the
Society. The offices of the society shall be at_____ in the
city of_____, or at such other place as the directors may
determine; and in case of any alteration in the place of meeting of

_____

[† In case of its being desired to enrol the Society under the Joint Stock Companies
Act, as a provincial Life or other Assurance Company, the rules above given would suit with
the modifications required by the Act.]

the society, notice shall be sent to the Registrar of Friendly Societies in England, within seven days after such removal, signed by three members of the society, and countersigned by the secretary.

3.—The annual general meeting of the members shall take place at the offices of the society, on the first _____ day in the month of _____ in each year after the year 18 ____. A special general meeting of the society may be called by the directors of their own authority, and shall also be called upon a requisition sent to the secretary, signed by twenty-five members, and fourteen days' notice of such meeting shall be given by circular to each member, stating the time, place, and object thereof; and no other business than that specified in the circular shall be transacted at such meeting.

III. *Voting.*

4.—Every question submitted to any meeting of the directors or members generally shall be decided by the votes of the majority of the members present thereat and entitled to vote ; and every director shall be entitled to one vote at any meeting of the directors, or of the members. All votes shall be first taken by show of hands, upon which the decision of the chairman of the meeting shall be final, unless a scrutiny be demanded, in which case it shall be forthwith taken.

5.—No member, except on the question of the dissolution of this society, shall be entitled to more than one vote, neither shall any director or member be allowed to vote by proxy, nor shall any member be entitled to attend any meeting of the society, or to vote on any question without producing his certificate of membership, if required to do so by the chairman of the meeting, nor until he has been three months a member of the society, and has duly paid his subscriptions for that period.

6.—In all cases of equality of votes, the chairman of the meeting, in addition to his vote as a member of the society, shall have an additional or casting vote.

7.—No officer or member of the society shall be allowed to vote on any question affecting his individual interest or conduct, nor shall he be present at the discussion thereof, should the majority of the members present desire him to withdraw.

IV. *Arbitration.*

8.—Any dispute between the society and any individual member thereof, or any person entitled to claim through or on account of any member, shall be referred to arbitration.

9.—At the first meeting of the society after the enrolment of these rules, five arbitrators shall be named and elected (none of them being beneficially interested, directly or indirectly, in the funds of the society), and in each case of dispute, the names of the five arbitrators shall be written on pieces of paper, and placed out of view in a box; and the three whose names are first drawn out by the complaining party, or by some one appointed by him, shall be the arbitrators to decide the matter in difference, and their decision shall be final.—If any of the arbitrators refuse to act, or any vacancy occurs by death or otherwise, the directors at the fourth meeting of their board afterwards held shall elect another arbitrator in the place of the arbitrator refusing, or to supply any such vacancy, who shall act until the next annual general meeting of the members.

10.—Every member requiring a reference to arbitration, shall deposit with the secretary ten shillings, to abide the result; and the arbitrators may direct the expenses of the reference, or any part thereof, to be paid by such member in such proportion as they may think fit.

11.—Any member neglecting to attend on arbitration, if summoned to do so, or refusing to answer any question put to him by the arbitrators, touching the matter in dispute, shall be fined five shillings for the first refusal, and be expelled the society if he persevere in such refusal; and if any member, officer, or other person, be proved to have tampered with one or more of the arbitrators, or attempted to do so, he shall be fined ten shillings for each offence, and be subject to exclusion if the fines be not paid before the next meeting of the board.

V. *Alteration and Construction of Rules.*

12.—Any of the rules herein contained, or any future rules of the society, may be repealed, altered, or added to, at a general meeting of the members convened for that purpose, by giving to each member seven days' notice of the time, place, and object thereof,

in pursuance of a requisition for that purpose, signed by not less than seven members, and addressed to the board of directors, setting forth the exact alterations and additions to be proposed at such meeting; but no such repeal, alteration, or addition shall be made, except with the concurrence of three-fourths of the members present at such general meeting, at which any amendments relating to the particular rule to be altered or added to may be proposed; and no rule not mentioned in such requisition shall be in any respect altered or repealed, except the same may relate to the subject matter of any rule so mentioned in the requisition.

13.—All alterations in, or additions to, these rules, shall be duly enrolled and certified, after which only they shall come into effect, and be binding on the members.

14.—In the construction of these rules the word "member" shall apply to an ordinary member, or person assured for any one or more of the benefits of the society, and not to an honorary member, unless when so expressed; the word "month" shall be held to be a calendar month; the word "year" shall mean the society's year, and every such year shall be taken to expire with the ＿＿＿＿＿＿ day of ＿＿＿＿＿＿＿＿ ; the word "board" or "directors" shall mean board of directors; the words "policy" or "policy of assurance" shall be an assurance for any benefit whatever authorized by these rules; and the words, "this society" shall mean and include any branch or branches thereof; and whenever any word importing the singular number or the masculine gender only is used, it shall be held to include or apply to the plural number or feminine gender, as the case may be, and *vice versâ*, unless there be something in the subject or context repugnant to such construction.

VI.　*Alteration of Rates and Tables.*

15.—It shall be lawful for the directors, with the advice of the consulting actuary, to alter from time to time the tables in use by the society, and the rates of subscriptions at which members may thereafter be admitted into the society, provided that such tables and rates, shall not be considered to be in force until a copy thereof shall be deposited with the Registrar of Friendly Societies in England and Wales.

VII. *Funds.*

16.—Separate and distinct accounts shall be kept of the funds, receipts, assets, and liabilities of each class of business of the society, and no class shall in any manner be liable to make good the deficiencies in, or be entitled to participate in the profits of, any other class.

17.—Each class shall consist, and be composed, of all contributions made by members in order to assure for the benefits of the said class.

18.—The funds arising from all the classes shall be invested in common, (in the manner hereinafter provided,) and the profit or loss arising from such investments, shall be rateably divided among the classes, according to the amount of money contributed by each.

19.—The members of this society shall have an interest in its assets, and its profits and losses, in proportion to their qualification in the particular class to participate in the benefits of which they have become members.

20.—Each class shall be entitled to participate in the benefits of the permanent guarantee and expense fund, in such proportion as the directors shall from time to time think safe and equitable.

VIII. *Investment of Funds.*

21.—So much of the funds of the society as may not be wanted for immediate use, or to meet the usual accruing liabilities, shall, with the consent of the board of directors, acting on the advice of the solicitor, be invested by the trustees in such of the securities authorized by the Act of Parliament in force for the time being relative to friendly societies, as the board shall direct, and more particularly in any savings' banks, subject to the provisions of Acts in force relating to the same, or in any of the Parliamentary stocks or public funds of Great Britain and Ireland, or at interest upon Government securities, or in the Bank of England stock, or in the stock or securities of the Honourable East India Company, or on mortgage of freehold, leasehold, or copyhold property, such leasehold being for a term of years absolute, of which not less than thirty years shall be unexpired, and such copyhold being copyhold of inheritance in Great Britain or Ireland, or in security of any heritable property, or in any chartered or other public joint stock bank in Scotland, or in or upon the security of any county or borough rates

anthorized to be levied and mortgaged by any Act of Parliament, or
on loan to any member of this society, on the security of any policy
of assurance effected therewith on his own life, provided that the
amount of such loan shall not exceed the actual estimated value of
such policy at the time such loan be made ; and it shall be lawful for
the trustees, from time to time, with such consent as aforesaid, to
alter and transfer such securities and funds, and to make sale thereof
respectively; and all dividends, interest, and proceeds which shall
from time to time arise from the monies so laid out or invested as
aforesaid, shall be brought to account by the trustees, and shall be
applied to and for the use of this society, as hereinbefore provided.

IX.   *Permanent Guarantee and Expense Fund.*

22.—There shall be created a Permanent Guarantee and Expense
Fund to meet the contingencies attending each class of the society's
business, and the general expenses of management : such fund to consist
of [(_____) *£5 guarantee shares paid up in full, and of*] all fines
or fees mentioned in these rules, (except remuneration fees payable to
the officers of the society), and of all monies arising from the sale of
rules, balance sheets, reports, or other documents, published by the
board ; and also of such an annual deduction or percentage on the
other receipts and subscriptions as the consulting actuary may from
time to time recommend ; and also of all donations that may be made
by honorary members or other friends to the society ; and likewise
of any interest to arise from the investment of such fund.

23.—All expenses and charges of management in carrying on the
business of the society, and all surplus claims upon the society's funds
for benefits assured in any class over and above the amounts respect-
ively applied thereto, shall be defrayed out of the Permanent
Guarantee and Expense Fund ; provided always, that if [*the pay-
ments which shall have been or may have to be made out of this fund,
shall have the effect of reducing the same to less than one-third of the
amount at that time paid up on the guarantee shares, or if*] at any
investigation of the affairs of this society, it shall be found that the
funds of any class, together with the sum or sums for which the
members thereof may have made themselves responsible, are insuffi-

cient to meet the claims upon that class, or if it shall appear that such is likely to become the case, [*it shall be lawful for the directors, with the advice of the consulting actuary, either to issue an additional number of guarantee shares, on such terms as he may deem just and proper, or*] the consulting actuary shall settle and adjust the claims of the members interested in that class or classes in which the deficiency may exist, and may divide among them such portion of the charges as may be necessary in such proportion per member, and to be payable or chargeable after such manner as they may deem equitable ; and whatever adjustment shall be recommended by the actuary and agreed to by the board of directors, shall be binding on all parties ; and any member refusing or neglecting to comply with such adjustment or alteration, shall be liable to the fines and other penalties laid down in these rules.

24.—At the end of the first five years, and every subsequent five years, investigations into the affairs of the society, valuations and estimates of its liabilities and assets, and of the Permanent Guarantee and Expense Fund, shall be made by the consulting actuary, and if, after all losses and expenses shall have been satisfied and provided for, any surplus profit remain, arising from excess of assets over liabilities, the same shall be [*divided into three parts, one-third part to be allotted by way of bonus among the holders of guarantee shares, and the other two-thirds to be*] appropriated to each class of the society's business, for the benefit of the members thereof, in such proportions and manner as the consulting actuary shall think safe and equitable : provided always, that any appropriation of surplus profit to the members of the sick fund, shall be made proportionably to the number of years that each member respectively shall *not* have received any benefit from the funds thereof.

25.—[*The holders of the guarantee shares hereinbefore referred to shall be entitled, during the continuance of the society, to half-yearly dividends, after the rate of 3 per cent. per annum on the amount paid up on the same, and by way of bonus, to a share in the before-mentioned one-third of the surplus profits, (if any), of the society, that may have been ascertained at quinquennial divisions of profits. And such participation in the profits shall not entail any liability whatsoever upon the holders of the guarantee shares, nor shall they be*]

entitled in respect thereof to any advantage or benefit from the society,
beyond the dividends and division of surplus profits above referrrd to.]

26.—[*The amount paid up on the guarantee shares, shall not be*
withdrawable from the funds of the society, but the rights and profits
appertaining to the same shall be transferable, on payment to the society
of six pence per share, by the owners thereof to any other parties who
may be approved of by the directors, and an entry of such transfer
shall be made in one of the books of the society, and be signed by the
original and new holders of each share, and by the secretary.]

X. *Indemnity to Officers.*

27.—The trustees, directors, and all other officers of the society
shall be and are hereby indemnified and saved harmless, out of
its funds and property, from and against all losses, cost, charges,
damages, and expenses, which they may incur or be put unto in or
about the execution of their respective offices, trusts, and services ;
nor shall they be liable for any banker, broker, or other person, with
whom the trust monies shall from time to time be deposited for safe
custody, investment or otherwise, nor for any involuntary loss, mis-
fortune or damage whatsoever, which may happen in the execution
of their respective offices, services, or trusts, or in relation thereto ;
and none of them shall be answerable for any act or default of any
other of them, nor for the insufficiency or deficiency in the title or
otherwise, of any security whatsoever, in which the money of the
society may be laid out or invested, unless the loss, arising from such
means, shall happen through their own neglect or default ; nor unless
he or they shall, in pursuance of 13 and 14 Victoria, c. 115, s. 14,
make a declaration in writing under his or their hands, to be deposited
with the registrar of friendly societies, that he or they respectively
are willing to be so answerable, and then only to such amount as
shall be specially named in such declaration aforesaid.

XI. *Power to Amalgamate.*

28.—It shall be lawful for this society to become united and in-
corporated with, [*or to underwrite the whole or part of its liabilities in,*]
any other friendly or life assurance society or societies, duly established
according to law, upon such terms as the consulting actuary may

advise, and as may be approved by the major part of the trustees and board of management of both societies.

29.—The directors may also incorporate the members of any existing society, so as to become part of this society, upon such terms as may, upon the recommendation of the consulting actuary, be mutually agreed upon. And the limit as to age, fixed in these rules, as regards the admission of new members, shall not extend to any person, being a member of any existing society, who shall become a member of this society under this rule.

30.—[*The directors shall also have power to contract with any other friendly society whatever, and to underwrite, undertake, or reassure all or any of the liabilities of such society, upon such terms as may be approved by the consulting actuary.*]

XII. *Dissolution of the Society.*

31.—No dissolution of this society shall take place so long as any of the intents and purposes in these rules remain to be carried into effect, unless the votes of five-sixths in value of the then existing members, and also the consent in writing of all persons then receiving, or then entitled to receive, relief from the society, be first had and obtained ; and for the purpose of ascertaining the votes of such five-sixths in value, every member shall be entitled to one vote, and to an additional vote for every five years that he may have been a member ; provided always that no member shall be entitled to more than five votes in the whole ; and in all cases of dissolution, the intended appropriation or division of the funds, or other property of the society, shall be fairly and distinctly stated in the proposed plan of dissolution prior to such consent being given : and it shall not be lawful for this society by any rule to direct the division or distribution of such funds or property, or any part thereof, to or amongst the several members of this society, other than for carrying into effect the general intents and purposes declared by these rules, as originally certified ; and all such rules for the dissolution or determination thereof, without such consent as aforesaid, or for the distribution or division of the stock or funds, contrary to the rules, shall be void and of none effect ; and in the event of such division or misappropriation of the funds, without the consent hereby declared to be requisite, any

trustee or other officer or person aiding or abetting therein shall be liable to the same penalties as are provided in the act 15 and 16 Vict., c. 115, in case of fraud. In case of the dissolution of the society, notice shall be sent to the registrar of friendly societies in England seven days before or after such dissolution, signed by the secretary and three members of the society.

OFFICERS AND MANAGEMENT.

XIII. *Appointment and Removal of Officers.*

32.—For the conduct and management of the affairs of the society, the following officers shall be appointed, namely,—trustees, directors, a treasurer, secretary, consulting actuary, banker, solicitor, auditors, medical officers, and visitors.

XIV. *Trustees.*

33.—_____

shall be and are hereby appointed the first trustees of this society, and shall be *ex officio* members of the board of directors.

34.—In case the said trustees, or any or either of them, or any future trustee or trustees to be appointed as hereinafter provided, shall die or be desirous of resigning or be discharged from, or shall become incapable of acting in the trusts in him or them reposed by these rules, or any amendment thereof, or be guilty of any gross neglect or improper conduct (of which the board of directors shall be the only judges) or shall remove from_____to a distance of more than ten miles ; or shall cease to have a place of business or residence in_____, so that the performance of their duties may become inconvenient to them ; or if a difficulty of access to them shall impede the business of the society, or if they shall become bankrupt or insolvent, or shall compound with their creditors, the secretary shall convene a special meeting of the members, who shall hear and determine thereon, and may thereupon remove such trustees or trustee ; and as often as any new trustee or trustees shall be elected or appointed, the trustee or trustees so removed shall cease to be a trustee or trustees, and shall be incapable of acting as a trustee

after such removal, or after the appointment of a new trustee or trustees shall have taken place. Any vacancy in the office of trustee, from any cause whatever, shall be filled up at a special general meeting by the members then present, and after every fresh appointment of a trustee or trustees, the resolution of the appointment shall be signed by the chairman of the board of directors for the time being, or by the chairman of the meeting at which such appointment shall have been made, and by three members and the secretary, and countersigned by the trustee so appointed; and the same shall be duly entered in the minutes of such meeting, and sent to the Registrar of Friendly Societies in England pursuant to 13 and 14 Vic. c. 115 s. 14; and the estates, monies, securities, funds, deeds, papers and property of the society shall become at once vested, without any assignment, in the continuing and newly appointed trustee or trustees.

35.—All deeds, writings, and securities to and from the society shall be made and taken in the names of the trustees or trustee for the time being, and shall be deposited with the bankers of the society, to be appointed by the board of directors, or with such other person as they may deem fit, in a box furnished by the society. And no documents whatever shall be allowed to be removed from such box, unless by an order of the board, signed by at least three directors then present.

36.—In case it shall be deemed necessary or expedient to bring or defend any action, suit, or prosecution at law or in equity, touching or concerning the property or assets, rights, or claims of this society, or touching or concerning the breach or non-performance of any of the articles, matters, and things herein contained, or of the conduct of any member or officer of this society, the same shall be brought or defended in the names or name of the trustees or trustee for the time being, and he or they shall be indemnified from all loss or damage to be by him or them sustained in consequence thereof; but no such proceeding shall be taken or defended until the approbation of a majority of the members present at a special meeting to be convened for that purpose, shall be first had and obtained; neither shall any trustee do any act in his official capacity, but by the written order of the board of directors, such order to be signed by the chairman of the meeting at which the same is made, and to be attested by the

secretary. It shall be lawful for the trustees of this society, with the consent of the members thereof, to purchase, hire, or take upon lease, any room or premises, for the purpose of holding therein its meetings, or for the transaction of business relating thereto, and to hold the same in trust in and for the use of this society, and to sell, exchange, let, and demise the same, in whole or in part, with the consent as aforesaid.

XV. *Board of Directors.*

37.—The board of directors shall consist of the trustees, treasurer, and of not less than six, nor more than ten, elected members, four of whom (not being the trustees) shall annually go out of office by rotation after the first two years.

38.—Messrs. _____

shall be and are hereby appointed the first and present directors of the society, with power to increase their number within the before-mentioned limits.

39.—The election of all future directors, in the places of those retiring by rotation, shall take place by ballot, at the annual general meeting in each year, except in case of vacancy by resignation or death during the year, when the same shall be filled up by the remaining directors at their next monthly meeting.

40.—One of the directors in rotation, with the treasurer and secretary, shall attend all meetings for the receipt and payment of money within the hours specified in these rules, or at such other time as the directors may from time to time think fit. Any director failing to attend in his rotation at any meeting for receipt of subscriptions, or to procure a substitute, shall pay a fine of two shillings and six pence, or if he fail to be present within the appointed hour, he shall forfeit one shilling.

XVI. *Qualifications of Directors and Auditors.*

41.—The qualification of any future director or auditor of this society, elected after the first year, shall be the holding, at the time of his election, of a policy of assurance, for £____ , with the society, on his own life, for the whole continuance thereof; or of an endowment assurance, on his own life, of at least £____ , or of a policy for

an annuity, immediate or deferred, upon his own life, of at leas £_____; or an assurance against sickness, in respect to himself, of at least (5s.) per week, and upon which he shall have duly made his payments for not less than six calendar months.

XVII. *Power of Directors.*

42.—The board of directors, for the time being, shall, subject to the provisions of the act 13 and 14 Vict., c. 115, generally and specially direct and manage the affairs and business of the society, according to the rules which from time to time may be in force for the government thereof, and shall in all things act for and in the name of this society; and all acts and orders under the powers delegated to them, shall have the like force and effect as the acts and orders of this society at any general meeting. The board shall fill up all vacancies in the offices of this society, occurring during the year, except where otherwise provided for by these rules; and the persons appointed shall continue in office until the then next annual general meeting.

43.—The board shall have power to accept or refuse any proposal for assurance made to this society, or to accept the same at any special or increased rate, or to refuse the same without being compelled to assign any reason for such refusal; or to insert in, or to endorse on any policy by them issued, such special clauses, agreements, and stipulations, as they may deem necessary and expedient; and all assurances effected by the society, and all business transacted, shall be done in such manner, and upon such terms and conditions, as the board may think proper.

44.—It shall be lawful for the board of directors to accept, upon such terms as they in their discretion shall think fit, with the advice of the consulting actuary, the surrender of any policy issued by the society, and also to redeem or re-purchase any annuity granted by the society, and to pay out of the funds or property of the society, the money required for such surrender, redemption, or re-purchase.

45.—The board of directors shall have power to appoint and keep in employ such other officers, clerks and servants as they may deem the business of the society to require, and to remove them or either of them at pleasure, and appoint others in their stead, and to fix the

duties from time to time to be performed by them respectively, and to allow them respectively such remuneration, by way of salary, wages, commission, or otherwise, as they may deem fit and proper.

XVIII. *Meetings of Directors.*

46.—The board of directors, or an executive committee thereof, shall meet for business twice in every month, or oftener, as the circumstances of the society may require, and they shall annually appoint out of their own body, a chairman and deputy chairman, and in the absence of both chairman and deputy chairman at any meeting of the board, the directors present shall appoint a chairman to preside at the same.

47.—The board of directors shall have power to hold special meetings of their own body, and to adjourn their ordinary and special meetings, as well as all general and special meetings of the members of the society, as occasion may require.

48.—The board may divide themselves into rotas, or executive and other committees, for the conduct of the business, and delegate such of their powers and duties to the same as they may think fit : (such rotas, or executive or other committees to be open to the other members of the board ;) provided, however, that no rota or executive committee shall continue to act longer than six calendar months at one time, without some change of members.   That for the transaction of general business, three elected directors shall form a quorum.   If an executive committee be appointed, which at any time shall consist of not less than five members of the board, then the full board shall also meet at least once every three months, to receive a report from the executive committee, as to the business of the society.

XIX. *Resignation or Removal of Directors and Auditors.*

49.—Any director or auditor may at any time vacate his office upon giving seven days' notice in writing of such his intention to the secretary. If any director or auditor shall at any time after his election, cease to keep in force the qualification necessary for the holding of his office pursuant to rule 41, or shall become bankrupt, or be declared insolvent, or die, or resign, his office shall become vacant, and if during the year, the vacancy shall be filled up by the

board, and any director or auditor so elected by the board in the place of any deceased or resigning director or auditor, shall be considered as his substitute, and shall go out of office by rotation at the same time and in the same manner as the director or auditor in whose place he is elected.

50.—Any director or auditor, not being disqualified, retiring from office by rotation, shall be eligible to be reëlected immediately or at some future time, and shall after such reëlection be considered, for all purposes of retirement by rotation, as a new director or auditor of the society.

51.—At the annual general meeting of the members in each year, the directors and auditors going out of office, shall, for all the purposes of the said meeting, or any adjournment thereof, be considered as the directors and auditors in office, and be empowered to act as such, the appointment of their successors having taken place, notwithstanding.

XX. *Treasurer.*

52.— _____ is hereby appointed the first treasurer of this society, and he shall be *ex officio* a member of the board of directors.

53.—All monies received by or on account of the society by the treasurer shall, on the same day, or at latest the day following the receipt thereof, by him be paid to the bankers of the society for the time being ; and the book in which the entry of monies so paid, or the bankers' receipt in lieu thereof, shall on the same day be deposited by him with the secretary, who shall cause it to be produced at the next meeting of the directors.

54.—The treasurer shall from time to time, as fixed by the board of directors, deliver to them an account of all the receipts and payments of money had and made by him on account of the society.

55.—The future appointment, removal, and remuneration of the treasurer shall vest in the full board of directors, and upon the removal or resignation of the present treasurer, or any future treasurer to be hereafter appointed, the treasurer so removed shall be incapable to act as a treasurer after the date of such removal, and he shall cease to be a member of the board of directors ; and he shall, upon demand,

deliver up and pay over all the monies, funds, and property remaining unaccounted for or unpaid by him to the society.

56.—The present or future treasurer shall give such security, pursuant to the act 13 and 14 Vict. c. 115, s. 11, for the faithful discharge of his duties, as the board may from time to time require.

XXI. *Secretary.*

57.— _____ is hereby appointed secretary to this society.

58.—The secretary shall, under the control and instruction of the board of directors, conduct and manage the business of the society; shall prepare and transmit the returns required to be made by the act of 13 and 14 Vict., c. 115; shall keep the books and accounts of the society; shall send all letters, and generally conduct the correspondence of the society.

59.—For the payment of petty current expenses, the secretary shall from time to time receive a cheque of ten pounds, which shall be duly renewed on a proper account of his former payments, to the amount of the last cheque received by him, being made to, and allowed by, the board.

XXII. *Consulting Actuary.*

60.—A consulting Actuary shall be engaged to make a valuation of the affairs of the society at the end of every five years, to whom also all questions, as they arise, relating to the rules and tables or the benefits of members and the financial condition of the society, shall be specially referred.   The report of the auditors shall be countersigned by the actuary, and shall be read at the annual meeting.

61.— _____ is hereby appointed consulting Actuary to this society.

XXIII. *Bankers.*

62.—The board of directors shall have power from time to time to select the bankers of the society, and the signature of a trustee shall not be necessary in any case to cheques drawn on the society's account. No payment shall be made out of the society's funds to the amount of £5 and upwards, except by cheque, to be signed by not less than

three members of the board of directors, and countersigned by the secretary, and all payments so made shall be valid and effectual as between the trustees and the members.

63.—All money received from the members shall be paid in to the bankers to the credit of the society, by the Treasurer, Secretary, or other persons receiving the same, as the board of directors shall appoint.

XXIV. *Solicitor.*

64.—   shall be the first solicitor of the society, and it shall be his duty, and the duty of any solicitor who shall be appointed by the board of directors in case of a vacancy (which latter solicitor, as well as the said solicitor hereby appointed, shall be removable for misconduct) to transact all the legal business of the society, under the direction of the board, for which he shall receive a fair and reasonable remuneration ; and should any dispute arise as to his charges, the same shall be referred to the decision of the board, whose determination shall be final.

65.—The solicitor shall, at any time, upon the request and at the expense of any mortgagor, furnish him, on receipt of a proper fee for the same, with an abstract of the title, or copy of the security given by him.

XXV. *Auditors.*

66.—At the annual meeting of the members in each year, two auditors (not being directors) shall be elected by ballot from among the members; who, with one to be appointed by the board of directors as public auditor, shall examine and audit all accounts previous to the next ensuing yearly meeting.

XXVI. *Medical Officers.*

67.—There shall be   medical officers of this society, each duly qualified, and having a legal title to act as a physician or surgeon. The appointment, remuneration and removal of such officers shall be in and be determined upon by the directors. One of them shall, if required, examine all persons proposing to make an assurance with the society, and shall apply for such written particulars and information connected with every case as shall be necessary or expedient for the knowledge or guidance of the board. The medical officer

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designated by the board, or his deputy or assistant, shall at least once in every week, visit any member of the society claiming weekly allowance on the funds through sickness, and shall report thereon as may be directed by the board.

XXVII. *Visitors.*

68.—From time to time, two or more members, one of whom at least, if necessary, shall be a female, shall be appointed by the board, subject to their direction, as visitors; and in case of resignation or illness, their places shall be supplied from among the other members.

69.—They shall periodically visit all members claiming or receiving sick allowance, and they shall receive such remuneration as the board may think fit.

XXVIII. *Local Branches.*

70.—If at any time it shall appear to the directors that the interests of the society shall require the same, they shall have power to create local branches of this society, and to vary, change, and discontinue the same from time to time.

71.—Each branch shall be under the management of an agent, or committee of two or more local directors, (to be annually appointed by, and to be under the control of, the board of directors,) who shall delegate such powers, and allow such remuneration to the said agent or committee, and vary the same, and make such regulations for their guidance and conduct, and in respect to the qualification or interest in the society they should possess, as from time to time the board may deem expedient; provided always, that no resolution or proceeding of any agent or local committee formed under this or any future rule, shall be binding on the society until it shall have received the approval or confirmation of the board of directors for the time being.

72.—The agents or local committees may accept, under the superintendence of the board of directors, proposals for assurance with the society, receive premiums from, and pay the weekly allowance due to, all persons assured through their agency, and transact such other business, through the direction of the board, as may pertain to the duties of their office.

73.—Every agent or branch of this society shall periodically, at

such time or times as the board may fix, transmit a return of the amounts received and paid by him or them since the date of his or their last return, on behalf of the society, together with all other necessary documents and information required by the board.

XXIX. *Agents.*

74.—In case of simple agencies, one or more of the members resident in the agent's districts may be appointed to see to the proper discharge of his duties.

MEMBERS.

XXX. *Admission of Members.*

75.—Any person, male or female, between the age of 10 and 60, in good health, and of good moral character, may, subject to the approval of the board of directors, become an ordinary member of the society, and assure for any one or more of the benefits set forth in these rules, on making application to the board in the ﹍ m appended hereto; but no minor shall be competent, during his minority, to hold any office in the society.

76.—Any person making such application shall deposit with the secretary, in advance, one month's or week's subscription on the benefit proposed to be assured by him; and shall also produce, before admission, a register of his birth or baptism, or some other satisfactory proof of age, together with a certificate of health, signed by a medical officer of the society; but in the event of his not being admitted, the deposit shall be returned to him by the secretary.

77.—The date of a member's admission shall, in all cases, count from the first payment made by him, after his proposal shall have been accepted by the board.

XXXI. *Honorary Members.*

78.—Any person, upon the payment of an annual subscription of ﹍ , or a life subscription of ﹍ , shall be deemed an honorary member of this society.

79.—No honorary member shall vote at any meeting or in any manner participate in the profits or losses of this society.

XXXII. *Payments.*

80.—All payments by members, whether single, annual, quarterly, monthly, or weekly, shall be made *in advance.*

81.—A member may, at the time of his admission into the society, or at any subsequent period, redeem or pay up the whole of his subscriptions, on one or all of the benefits, for which he may be assured, in one sum ; and whenever he may have so paid up his subscriptions for any one or more benefits or assurances, the said benefits or assurances shall continue in force, exempt from forfeiture, (subject nevertheless to the rules) notwithstanding that his subscriptions for any other benefit or assurance may fall in arrear and remain unpaid.

82.—No member shall be entitled to receive the benefit of his assurance or assurances until he has been six clear calendar months in the society, and has also made all the payments due in that time ; but any member may immediately become free and entitled to his benefit by paying down in one sum the extra amount of four months' subscriptions, in addition to his ordinary subscriptions to be made during the same period ; and this rule shall apply to any member who may, at any time subsequent to his entrance into the society, be desirous of increasing the benefit or benefits for which he may be assured.

XXXIII. *Fines.*

83 —Any member failing to pay his contribution at any meeting for the receipt of subscriptions, shall, for the first two months' defaults, be fined five per cent. on the amount of the arrears. If the arrears exceed three months, he shall pay a fine equal to one-sixth of the amount of arrears then due, and if all arrears of subscriptions or fines be not paid before the end of six calendar months, such member shall forfeit all claims to those benefits in respect of which the subscriptions were due, as well as all monies previously paid on the same ; provided nevertheless that if any benefit assured by this society, shall become void in consequence of any non-payment of the premiums from time to time falling due thereon, it shall be lawful for the board of directors to re-establish or revive such benefit at such terms and at such period thereafter, not exceeding six calendar months, as they shall think proper.

XXXIV. *Increase, decrease, or sale of Benefit.*

84.—A member under fifty years of age may, at any time after his admission into the society, increase the amount of any benefits for which he may have assured on admission, or, having only assured for one benefit, may subsequently assure for any other benefit or benefits either continuing his original benefit or cancelling the same, upon producing, if deemed necessary, satisfactory medical evidence of the unimpaired state of his health, his monthly or other subscription for such increase being calculated according to his increased age; his original subscription and the benefit assigned thereby remaining the same.

85.—If any change in the occupation or abode of any member, should at any time render it equitable or expedient that the board of directors should consent and agree to determine or cancel any of the assurances effected between such member and this society, or if any member shall, from loss of employment or other unforeseen circumstances, not occasioned by his immorality or improvidence, be unable to continue his subscriptions, it shall be lawful for the board to allow such member to determine or cancel any one or more of his assurances, or part of any assurance, without forfeiting any other or part of an assurance ; and the then value of the assurance or part of assurance so determined or cancelled shall be applied in reduction of the future premiums on that assurance or part of assurance remaining in force ; or the board may grant to such member in lieu thereof another equivalent policy, free from all further payments to be made by him, or upon such other terms as they may think fit, and as may be fixed by the consulting actuary as just and reasonable : and no member shall in any other way sell or assign or transfer any benefit or assurance effected by this society, and any agreement made for any such purpose shall be null and void, and every such benefit or assurance, together with all subscriptions paid thereon, or in respect thereto, shall be forthwith forfeited for the use of this society.

XXXV. *Change of Residence.*

86.—Any member changing his place of abode shall give notice of the same to the secretary within fourteen days of such change, and any member neglecting so to do shall be fined _____ .

87.—Any member may be transferred from this society or from any branch thereof to any other branch, upon giving due notice in writing to the secretary ; or if any member shall remove from the limits of this society to any place in which a friendly society, not being a branch of this society, but founded and conducted upon the same principles, and adopting the same rates as this institution, shall have been established according to law, the board shall have power, with the consent of such member, to transfer his assurance to such society, and pay thereto such a sum, out of the funds of the class to which he may belong, as may be recommended by the consulting actuary, and agreed to by the majority of the boards of both societies : the subscription and benefit of the member in all cases continuing the same.

88.—The assurance of any member of another society, upon his coming to reside within the limits of this society, may in like manner be transferred, either temporarily or permanently, on his providing such evidence and his subscribing such declaration as may be prescribed by the directors, and conforming to the rules in all respects.

89.—Any member may, (in time of peace) with the sanction of the board of directors, travel and reside in any part of Europe, (except Turkey and the Levant,) the British Colonies, and that part of America 35° north or south of the equator, without forfeiture of the benefits for which he may be assured, provided that he previously make such arrangement respecting the payment of his subscriptions, either by instalments during his absence, or within three months after his return, together with interest thereon, as the board may deem just and equitable : upon fulfilling which, and producing, if required by the directors, satisfactory proof of the unimpaired state of his health, he shall be reinstated, as if no such absence had occurred.

90.—No member, during the period of his residence out of England, shall receive any allowance to which he may be entitled from the sick fund.

XXXVI. *Members may inspect Books.*

91—Any member may inspect his account in the society's books, during the time that the books are open for the receipt of subscriptions, and any member may have a copy of his account on applying

to the secretary, after six days' previous notice in writing for that purpose, and the payment of sixpence.

XXXVII. *Alteration of Trade.*

92.—Any member, who shall, at any time subsequent to his admission into this society, change his trade or occupation, shall give notice thereof to the secretary : and if his new trade or occupation be considered by the board as hazardous, they shall have power, with the advice of the consulting actuary, at their own discretion in each case, to make a proportionate increase in the amount of subscription to be paid by the said member to keep his benefit in force, or the board may purchase the same from him as laid down in these rules.

XXXVIII. *Suspension.*

93.—If at any time after a member's admission into the society, doubts may arise as to his age, or as to the truth of any statement made at admission, or on any other point which the directors may deem it necessary to investigate, it shall be lawful for them to call for such evidence as they may require, and in the meantime to suspend such member's benefits until satisfied as to the point at issue, subject to the member's right to have recourse to arbitration as hereinbefore provided.

XXXIX. *Exclusion.*

94.—If any member, having in his possession any sum of money, the property of, or effects belonging to, this society, shall fraudulently withhold, or attempt to withhold the same, he shall, upon satisfactory proof to the board of directors, be fined double the amount of all the monies so withheld or attempted to be withheld.

95.—If any member, upon satisfactory proof as aforesaid, be found guilty of such offence a second time, or shall neglect or refuse within ten days to pay the fine imposed upon him as above, or shall be convicted of felony or any other infamous crime, or shall be proved to be fallen into confirmed habits of intemperance, or if he shall knowingly recommend for membership any person not eligible, according to the rules of this society, or if he shall receive sick allowance from any other friendly society without giving notice to

this society, or if he shall know of any deception or fraud being practised on the funds of the society by any other member, without giving immediate notice thereof to the secretary, and such proof thereof as may be in his power, or if he shall while receiving sick allowance, be found drinking in a public-house, beer-shop, or in any place connected therewith, or be found intoxicated, gambling, transacting any business, or serving in a shop, or imposing or attempting to impose on the funds by feigned sickness, or by any other deception, or doing any wilful act, whereby his recovery from sickness may be retarded, or if he shall refuse to declare off the funds of the society, as laid down hereinafter, he shall for ever be excluded from the society, and forfeit all his interest in the benefits or funds thereof.

AS TO LIFE ASSURANCE.

XL. *Terms.*

96.—The society will grant (according to Tables _____appended to these rules) policies of life assurance to any person between the ages of_____ and _____ for any sum not exceeding £(100) to become payable at the end of one month after satisfactory proof shall have been given to the directors of his death.

97.—Any person so assuring shall give a reference to two respectable persons (one being of the medical profession, if required by the board) to corroborate his own statement of good health.

XLI. *Forfeitures.*

98.—Any life assurance policy issued by this society (together with all premiums paid in respect thereof) shall be forfeited and become void, if the monthly or other payments be not duly made, or if the person assured therein shall, without the permission of the board of directors first had and obtained, go beyond the limits allowed by his policy or by rule 89, or if he shall die by the hand of justice, or in, or in consequence of, a duel or fight, or by justifiable homicide, or by suicide; provided however that in the last-mentioned case, it shall be lawful, but not compulsory, for the directors to return to the representatives of the deceased, a sum not exceeding one-half of the total amount of premiums received on his policy, if the same has been two full years at least in force.

99.—If any policy of assurance shall become forfeited, so also shall any sum or sums which may have been added thereto by way of bonus.

XLII. *Special Risks.*

100.—In any case in which a person, on whose life an assurance may be effected by the society, shall go or travel beyond the limits allowed by rule 89 or by his policy, or shall insure any other risk not embraced in the said policy, it shall be lawful for the board of directors, upon such terms and conditions and upon the payment of such extra premiums as they may think proper, to enlarge the terms of the policy so as to embrace the increased risk.

XLIII. *Loss of Policy.*

101.—Should any member, who may be assured for a sum of money at death, lose or mislay his policy of assurance, he may procure another on application to the board of directors, on paying a fine of 2s. 6d., and giving such indemnity to the society as the directors may require; but if the policy cannot be produced after the death of the person assured thereby, by the person who, at the time of making application, shall, to the satisfaction of the board of directors, prove himself entitled to receive the sum assured by the said policy, it shall be lawful, but not compulsory, for the board of directors, notwithstanding the policy may be lost or mislaid, to pay the sum assured thereby, upon the personal indemnity, against the consequences of the loss or mislaying of such policy, of any person or persons, with whose character and responsibility the board of directors shall, in their discretion, be satisfied.

XLIV. *Payment of Claims.*

102.—A notice of the death of any member shall be furnished to the secretary, accompanied by a certificate of burial, signed by the minister officiating at the interment, or by a coroner, or some other competent person; and the amount assured shall be paid within one month after the next meeting of the board, or the directors may, at their discretion, if required, advance a portion thereof before the funeral of the deceased.

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103.—The directors shall have power to require, where they may deem the same necessary, a satisfactory certificate from a householder, identifying the deceased with the person assured in the policy.

AS TO SICKNESS ASSURANCE.

XLV. *Terms.*

104.—The subscriptions payable for sickness allowance shall be according to Tables ——— appended to these rules.

105.—No member shall be allowed to assure for a weekly allowance in sickness exceeding three-fourths of his average weekly income or earnings.

106.—Any member assuring for a weekly sum in sickness, and also for a deferred annuity of not less than half the same weekly amount, shall be entitled to his full allowance during sickness for a period not exceeding fifty-two weeks whenever it shall occur, and half allowance thereafter as long as it shall continue; provided in all cases such allowance shall cease when the deferred annuity commences.

107.—Any member assuring for a weekly sum in sickness, but not also for such deferred annuity, shall be entitled during the continuance of any sickness to his full sickness allowance (or full pay) for fifty-two weeks, and to one-half (or half pay) for the remainder of the sickness, provided such sickness do not continue more than two years in the whole; but he shall not be entitled to full pay again before fifty-two consecutive weeks have elapsed from the last payment on account of any sickness; and any claim made by him on the funds before the expiration of such fifty-two weeks shall be considered as on account of the same sickness, and he shall receive half-pay only.

108.—When any such member shall have received fifty-two weeks of full pay on account of any one or more attacks of sickness, he shall be reduced to half-pay for any subsequent sickness, until he shall have been altogether off the funds for fifty-two consecutive weeks, when he shall again be entitled to full pay.

109.—No female member shall be allowed payment for any sickness during the first month after confinement; but every married female member who shall pay ——— per month in addition to her

other payments for not less than ten months previous to her confinement, shall receive ——— per week during the said month.

XLVI. *Allowance.*

110.—Any member claiming on the sickness fund shall give notice to the secretary in the form appended to these rules ; and his allowance shall commence on the same day, if the notice be received by the society before twelve o'clock, if after that time, on the following day. Such member shall then be supplied weekly with a sick paper, upon which the medical officer and visitors of the society shall enter regularly the dates when they see the sick member, and the then state of his health ; and on the following Saturday, and every Saturday while the sickness of such member lasts, his sick allowance for the preceding week shall be paid on production of his weekly sick paper at the offices of the society.

111.—Any member residing beyond the district where his premiums are paid, who may claim on the sickness fund, shall give notice to the secretary in the usual form, but accompanied with the certificate of a respectable medical practitioner residing in the locality, setting forth the nature of the member's disease, and its rendering him incapable of work. Such member's allowance shall then be forwarded to him, deducting the expenses of sending the same ; and this medical certificate shall be renewed every fortnight, or no further allowance will be sent.

112.—No member shall be required to pay his sick fund subscription during the time he may be receiving allowance from the fund, and credit shall be given him for such time, and on such terms as the Directors may deem just and proper, for any subscriptions which, during his sickness, may be due for other benefits assured by him.

XLVII. *Declaring off the Funds.*

113.—On the day when the medical officer shall declare a sick member to have recovered from his illness or incapacity for labour, his allowance shall cease ; and on receiving his last weekly allowance, the said member shall sign a declaration of recovery in the form appended to these rules.

114.—Should any sick member, on the report of the medical

officer, refuse so to declare off the sick fund, the directors shall appoint a committee of three members holding assurances against sickness, and two medical officers, to examine and report on the case ; and, should a majority of these five persons state that such member is in a fit state to resume his usual employment, he shall forthwith declare off the funds or be excluded from the society.

XLVIII. *Leaving Home.*

115.—No member receiving sick allowance, or claiming medical aid, shall leave home, except with the written permission of the medical officer, setting forth the hours at which he may walk out for air or exercise. Any member leaving home without such permission, or being absent from home at any other than the hours specified therein, shall be fined 2s. 6d. for the first offence, 5s. for the second, and for the third offence he shall be excluded from the society.

XLIX. *Limitation of Allowance.*

116.—No member shall be entitled to claim upon the funds or to receive medical attendance or medicine on account of any sickness with which he may have been wholly or partially afflicted at the time of his admission, or on account of any accident, illness, or incapacity for labour brought on or occasioned by permanent insanity, intemperance, or immorality, or by fighting, wrestling, or any unnecessary exertion or exercise (of which the medical officer of the society shall be the sole judge), or by any hurt received by working at any other than the ordinary trade of such member, as set forth by him in his declaration at the time of his admission.

117.—In case of palsy, blindness, accidents, or any affections likely to continue an indefinite period, and which do not entirely incapacitate a member, it shall be lawful for the member so afflicted, if he be able, partially to follow his employment, subject however to an arrangement with the board, who shall have power to fix the amount thereafter to be paid by the society, in respect of or in lieu of his allowance as assured. If the member shall be unable partially to follow his employment, the case shall be submitted to three arbitrators, who shall fix the amount thereafter to be paid him by the society.

118.—No sick allowance is to be paid to any member, who shall have been in arrear with his subscriptions or fines within two months of his claiming on the funds.

119.—No member confined in a lunatic asylum, or debtors' or criminal prison, shall receive any sick allowance during the period of his confinement, neither shall any member in the police force be entitled to sick pay for any injury he may receive in the performance of his duty, unless he shall have insured specially against such contingency; nor shall any member receive any allowance for sickness during such time as he or she shall be in a workhouse.

120.—In all cases of accident to the person, in which damages are awarded for the injury or injuries received, the society shall have a claim for sick allowance granted to the member during the illness consequent thereon, to be repaid to it from the amount of damages given.

121.—In cases of permanent bad health, or total inability to work arising in consequence of injuries, the society, having granted its bounden allowances, shall only have claim to certain proportion of the damages given, to be decided by arbitrators selected for the occasion. If no legal proceedings are taken by the individual member, the society may act on its own responsibility.

L. *Medical Aid.*

122.—Any member assured for an allowance in sickness may, by an additional subscription of ——— per month, become entitled to receive medical attendance and medicine from the medical officer of the society during sickness or accident. Any member may also assure the like benefit for any children, under —— years of age, by an additional payment for each child, of ——— monthly.

123.—A member's right to receive medical advice or medicine, either for himself or his children, shall commence at the expiration of six months from the date of his first payment to assure the same, and shall cease only with his assurance against sickness. Any member entitled thereto may claim medical aid and medicine without declaring on the funds.

AS TO DEFERRED ANNUITIES.

LI. *Terms.*

124.—Any member may assure for a deferred *life* annuity for himself, or on the life of another, to commence at the age of sixty or upwards, and payable yearly, half-yearly, quarterly, or monthly, as may be previously agreed on.

125.—The subscriptions to assure a deferred annuity, according to Tables —————— shall cease to be paid as soon as the annuity commences.

AS TO ENDOWMENTS.

LII. *Terms.*

126.—Members of any age or occupation may assure for any sum of money from £5 to £—, as an endowment for themselves or their children, or on the lives of others, according to the Tables ————— appended to these rules.

LIII. *Payment of Claims.*

127.—The payment of any endowment shall be made within one month from the date of that meeting of the directors at which the validity of the claim shall be admitted by the board.

LIV. *Death of Assured.*

128.—Should any person assured for an endowment at a specified age, die before the attainment thereof, his representatives shall receive back the whole amount contributed, less a deduction towards the expenses of management after the rate of ——— per cent. per annum.

LV. *Death of Assurer.*

129.—The death of any person holding a policy of endowment on the life of a child, and any consequent cessation of payments thereon, shall not affect the interest of the child assured, as regards the premiums already paid, as an endowment shall still be granted to the child, on its attaining the prescribed age, proportionate to the amount of premiums paid.

LVI. *Notice of Claims.*

130.—Members assured for any deferred benefit (either annuity or endowment) shall, previous to the age at which such benefit is payable, give one month's notice of the same to the secretary, and shall, if required, produce satisfactory evidence of identity and of age.

[*Here should follow the Tables and Schedules of Forms, &c.*]

NEW DEPOSIT TABLES

SAVINGS' BANKS AND INDUSTRIAL ASSOCIATIONS.*

The following Tables are given in illustration of a system proposed with the view to give a Depositor a greater average rate of interest for his investment than that at present afforded by Savings' Banks, and at the same time to afford facilities for the withdrawal, at will, of a pre-arranged portion of the Deposit. The sum deposited is accordingly divided, in the outset, into two portions, one of which has been supposed to be withdrawable at a week's notice, the other at not less than six months. The latter portion, therefore, not being liable to abrupt withdrawal, can be invested at a higher rate of interest than the former. On this account two rates of interest are employed in the calculations, as will be seen on reference to the Tables. It is also a condition of the investment that the accruing *compound* interest thereon shall not be withdrawn until the withdrawal of the whole of the Deposit, an equivalent for this restriction being given in the investment from year to year, at the *higher* rate, of the total amount of each year's interest on the two portions of the Deposit.

The portions assumed in the Tables will probably, in most cases, be found sufficient, with care, to meet any ordinary contingency; and the delay which occurs in the removal of the remainder will operate beneficially as a check to hasty and reckless withdrawals. These preliminary observations will suffice to explain the system, and we now proceed to describe the arrangement of the Tables.

I. SINGLE DEPOSITS.

These consist of Tables I. to VI. inclusive, all of which are computed upon the same principle, but different rates of interest (See *Formulæ* in *Appendix* to *Treatise on Building Societies*). The rates employed are cited at the head of each Table, and it is presumed that the headings and foot notes will be found sufficiently explanatory.

II. ANNUITY DEPOSITS.

These consist of Tables VII. to XII. inclusive, and show the result of a series of annual Deposits. It will be perceived that these Tables are

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* If the Managers of a Savings' Bank prefer it, they can underwrite the Annuities herein referred to, with an Assurance Office.

computed at the same rates, respectively, as the previous six Tables. They are, in fact, obtained from those Tables by addition.

III. DEFERRED ANNUITIES.

These consist of Tables XIII., XIV. and XV., and are an adaptation of the principles developed in Tables I., II. and III., to the purchase of Deferred Annuities. The attention of the reader is particularly requested to these Tables. It will be perceived that the money deposited accumulates, during the stipulated period, without any reference to a law of mortality. The consequence of this is that a Depositor, who may, from any cause, find it advisable to withdraw before attaining the stipulated age, will receive a much larger sum, under these Tables, than he would under any other system of Deferred Annuities hitherto proposed. It is true that, were the same amount to be deposited in a Savings' Bank in purchase of an annuity, the *resulting annuity* would be somewhat larger than these Tables give; but, viewed as a *whole*, it is conceived that the plan herein delineated is much more advantageous. Thus a man at 30, who deposits £10 in a Savings' Bank, will at 60 obtain an annuity of £2. 19s. 7d.; whereas, Table XIII. would give him but £2. 11s. 11d. Suppose, however, that at the age of 55 he should withdraw or die, then he or his representatives would receive, under the above mentioned Table XIII., the sum of £22. 13s. 2d. The Savings' Bank would merely return the £10. (See Note to Table XIII.)

NOTE.— *The reader will observe, on examining the Tables, that the Columns relating to Deposits of £100 are not in all cases, exactly ten times the amount of the corresponding value for Deposits of £10. These discrepancies are occasioned by the suppression of fractional parts of a penny.*

☞ For Tables of *Single Deposits* to assure sums payable at *death*, see Part I. of this division of the " Treatise," and for *Annual Deposits*, see Tables XVI. and XVII. herein.

SINGLE DEPOSITS.

TABLE I.

Showing the Amount to which a Deposit of £10 or (£100) will accumulate at the end of any number of Years up to 10; on the condition that, after the first Year, One Half (or One Fourth) of the Sum deposited may be withdrawn, *without interest*, on giving one week's notice; the balance of the Deposit and the accumulated compound Interest remaining unwithdrawable till the end of the period, unless six months' notice of withdrawal be given.

Rates of Interest £3 10s. and £2 10s. per Cent., as explained at foot.

	DEPOSIT OF £10.			DEPOSIT OF £100.		
No. of Years.	One Half withdrawable.	One Fourth withdrawable.		One Fourth withdrawable.	One Half withdrawable.	No. of Years.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.	
1	10 6 0	10 6 6		103 5 0	103 0 0	1
2	10 12 2	10 13 3		106 12 4	106 2 1	2
3	10 18 8	11 0 2		110 1 11	109 6 5	3
4	11 5 3	11 7 5		113 13 11	112 12 11	4
5	11 12 2	11 14 10		117 8 7	116 1 9	5
6	11 19 4	12 2 7		121 5 9	119 13 0	6
7	12 6 8	12 10 7		125 5 8	123 6 9	7
8	12 14 4	12 18 10		129 8 4	127 3 1	8
9	13 2 3	13 7 5		133 14 0	131 2 1	9
10	13 10 5	13 16 3		138 2 7	135 3 11	10

N.B.—This Table is computed according to formula No. I., Art. 3, in the Appendix, on the supposition that the *lower* rate of $2\frac{1}{2}$ per cent. is allowed on the withdrawable portion of the Deposit, and $3\frac{1}{2}$ per cent. on the unwithdrawable portion, as also upon the entire amount of the interest as it accumulates from year to year.

Example.—A person having deposited £100 will be entitled, at any time after the first year, to draw out 50, or £25, as the case may be, at a week's notice. Say he has retained the power to withdraw one-half, and that he exercises this power at the end of the 5th year. The amount at his credit at that moment is £116 1s. 9d., from which deducting the £50 withdrawn, there will remain £66 1s. 9d. to accumulate for the remaining 5 years (or until withdrawn under a six months' notice) at $3\frac{1}{2}$ per cent. compound interest. If, on the other hand, the whole amount of the Deposit be left undisturbed by the Depositor during the term, then the accumulated amount at the end of 10 years will be £135 3s. 11d.

TABLE II.

Showing the amount to which a Deposit of £10 (or £100) will accumulate at the end of any number of Years up to 10, on the principle of Table I.

Rates of Interest of £3 5s. and £2 10s. per Cent.

	DEPOSIT OF £10.		DEPOSIT OF £100.		
No. of Years.	One Half withdrawable.	One Fourth withdrawable.	One Fourth withdrawable.	One Half withdrawable.	No. of Years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1	10 5 9	10 6 2	103 1 3	102 17 6	1
2	10 11 8	10 12 5	106 4 6	105 16 10	2
3	10 17 10	10 19 0	109 9 9	108 18 2	3
4	11 4 2	11 5 9	112 17 3	112 1 6	4
5	11 10 8	11 12 8	116 6 9	115 6 9	5
6	11 17 5	11 19 10	119 18 8	118 14 3	6
7	12 4 5	12 7 3	123 12 10	122 3 11	7
8	12 11 7	12 14 11	127 9 6	125 15 10	8
9	12 19 0	13 2 11	131 8 7	129 10 0	9
10	13 6 8	13 11 0	135 10 3	133 6 9	10

N.B.—The observations at the foot of Table I. apply in a similar manner to the results of this Table.

TABLE III.

Showing the Amount to which a Deposit of £10 (or £100) will accumulate at the end of any number of Years up to 10, on the principle of Table I.

Rates of Interest £3 2s. 6d. and £2 10s. per Cent.

	DEPOSIT OF £10.		DEPOSIT OF £100.		
No. of Years.	One Half withdrawable.	One Fourth withdrawable.	One Fourth withdrawable.	One Half withdrawable.	No. of Years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1	10 5 7	10 5 11	102 19 4	102 16 3	1
2	10 11 5	10 12 1	106 0 8	105 14 3	2
3	10 17 5	10 18 4	109 3 9	108 14 1	3
4	11 3 7	11 4 11	112 8 10	111 15 9	4
5	11 9 11	11 11 7	115 16 0	114 19 4	5
6	11 16 6	11 18 6	119 5 3	118 5 0	6
7	12 3 3	12 5 8	122 16 8	121 12 7	7
8	12 10 3	12 13 0	126 10 3	125 2 5	8
9	12 17 5	13 0 7	130 6 3	128 14 4	9
10	13 4 10	13 8 6	134 4 7	132 8 7	10

N.B.—The observations at the foot of Table I. apply in a similar manner to the results of this Table.

TABLE IV.

Showing the amount to which a Deposit of £10 (or £100) will accumulate at the end of any number of Years up to 10, on the principle of Table I.

Rates of Interest 5 and 3 per Cent.

No. of Years.	DEPOSIT OF £10.						DEPOSIT OF £100.						No. of Years.
	One Half withdrawable.			One Fourth withdrawable.			One Fourth withdrawable.			One Half withdrawable.			
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
1	10	8	0	10	9	0	104	10	0	104	0	0	1
2	10	16	5	10	18	5	109	4	6	108	4	0	2
3	11	5	2	11	8	5	114	3	9	112	12	2	3
4	11	14	6	11	18	9	119	7	11	117	4	10	4
5	12	4	3	12	9	9	124	17	4	122	2	1	5
6	12	14	5	13	1	3	130	12	2	127	4	2	6
7	13	5	1	13	13	3	136	12	9	132	11	4	7
8	13	16	5	14	5	11	142	19	5	138	3	11	8
9	14	8	2	14	19	3	149	12	5	144	2	1	9
10	15	0	8	15	13	2	156	12	0	150	6	3	10

N.B.—The observations at the foot of Table I. apply in a similar manner to the results of this Table.

TABLE V.

Showing the Amount to which a Deposit of £10 (or £100) will accumulate at the end of any number of years up to 10, on the principle of Table I.

Rates of Interest 6 and 3 per Cent.

No. of Years.	DEPOSIT OF £10.						DEPOSIT OF £100.						No. of Years.
	One Half withdrawable.			One Fourth withdrawable.			One Fourth withdrawable.			One Half withdrawable.			
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
1	10	9	0	10	10	6	105	5	0	104	10	0	1
2	10	18	6	11	1	8	110	16	3	109	5	5	2
3	11	8	8	11	13	5	116	14	4	114	6	6	3
4	11	19	5	12	5	11	122	19	4	119	13	9	4
5	12	10	9	12	19	2	129	11	11	125	7	4	5
6	13	2	9	13	13	2	136	12	5	131	7	9	6
7	13	15	6	14	18	2	144	1	4	137	15	5	7
8	14	9	1	15	3	11	151	19	3	144	10	9	8
9	15	3	5	16	0	8	160	6	7	151	14	3	9
10	15	18	8	16	18	5	169	4	0	159	6	4	10

N.B.—The observations at the foot of Table I. apply in a similar manner to the results of this Table.

TABLE VI.

Showing the amount to which a Deposit of £10 (or £100) will accumulate at the end of any number of years up to 10, on the principle of Table I.

Rates of Interest 7 and 3 per Cent.

	DEPOSIT OF £10.			DEPOSIT OF £100.			
No. of Years.	One Half withdrawable.		One Fourth withdrawable.	One Fourth withdrawable.		One Half withdrawable.	No. of Years.
	£ s. d.		£ s. d.	£ s. d.		£ s. d.	
1	10 10 0		10 12 0	106 0 0		105 0 0	1
2	11 0 8		11 4 10	112 8 5		110 7 0	2
3	11 12 2		11 18 7	119 5 9		116 1 6	3
4	12 4 5		12 13 3	126 12 10		122 4 0	4
5	12 17 6		13 9 0	134 10 1		128 15 1	5
6	13 11 6		14 5 10	142 18 5		135 15 4	6
7	14 6 7		15 3 10	151 18 6		143 5 5	7
8	15 2 7		16 3 1	161 11 2		151 5 11	8
9	15 19 9		17 3 9	171 17 4		159 17 10	9
10	16 18 2		18 5 9	182 18 0		169 1 8	10

N.B.—The observations at the foot of Table I. apply in a similar manner to the results of this Table.

It may further be observed that the system, as developed in one or other of the last three Tables, might be adopted with advantage by Industrial Associations (such as Friendly Societies and Building Societies) as an inducement to Investors. It gives them, upon the whole sum invested, an advantageous average rate of interest, and enables them to set free, at a brief notice, a considerable portion of the sum deposited, to meet unexpected emergencies.

ANNUITY DEPOSITS.

TABLE VII.

Showing the Amount to which a Deposit of £10 (or £100) *per Annum* will accumulate at the end of any number of Years up to 10 ; upon the condition that One Half (or One Fourth) of the aggregate of the Sums deposited may be withdrawn in the manner explained in Table I.

Rates of Interest £3 10s. and £2 10s. per Cent., as explained at foot.

No. of Years.	Deposit of £10 per Annum.				Deposit of £100 per Annum.				No. of Years.
	One Half withdrawable.			One Fourth withdrawable.	One Fourth withdrawable.			One Half withdrawable.	
	£	s.	d.	£ s. d.	£	s.	d.	£ s. d.	
1	10	6	0	10 6 6	103	5	0	103 0 0	1
2	20	18	2	20 19 9	209	17	4	209 2 1	2
3	31	16	10	31 19 11	319	19	3	318 8 6	3
4	43	2	1	43 7 4	433	13	2	431 1 5	4
5	54	14	3	55 2 2	551	1	9	547 3 2	5
6	66	13	7	67 4 9	672	7	6	666 16 2	6
7	79	0	3	79 15 4	797	13	2	790 2 11	7
8	91	14	7	92 14 2	927	1	6	917 6 0	8
9	104	16	10	106 1 7	1060	15	6	1048 8 1	9
10	118	7	2	119 17 10	1198	18	1	1183 12 0	10

N.B.—This Table shows the result of a series of *Annual Deposits* of £10 (or £100), and is found by taking successively the sums of 1, 2, 3, &c., terms of the corresponding columns of Table I., the rates of interest in this being the same as in that Table, viz. $3\frac{1}{2}$ per cent. on the unwithdrawable portion, and the accumulating interest, and $2\frac{1}{2}$ per cent. on the withdrawable portion.

Example.—A person having deposited £10 per annum, say for 5 years, will be entitled at the end of that year to withdraw one-half or one-fourth of the aggregate of his deposits to that time (viz. £25 or £12 10s.) as the case may be, at a week's notice; the remainder, together with the interest, being left to accumulate at $3\frac{1}{2}$ per cent. till the end of the term, or until withdrawn under a six months' notice. [Vide Note to Table I.]

TABLE VIII.

Showing the Amount to which a Deposit of £10 (or £100) *per Annum*
will accumulate at the end of any number of Years up to 10, upon the
principle of Table VII.

Rates of Interest £3 5s. and £2 10s. per Cent.

	DEPOSIT OF £10 PER ANNUM.				DEPOSIT OF £100 PER ANNUM.			
No. of Years.	One Half withdrawable.		One Fourth withdrawable.		One Fourth withdrawable.		One Half withdrawable.	No. of Years.
	£	s.	d.		£	s.	d.		£	s.	d.	£	s.	d.	
1	10	5	9	10	6	2	103	1	3	102	17	6	1
2	20	17	5	20	18	7	209	5	9	208	14	4	2
3	31	15	3	31	17	7	318	15	6	317	12	6	3
4	42	19	5	43	3	4	431	12	9	429	14	0	4
5	54	10	1	54	16	0	547	19	6	545	0	9	5
6	66	7	6	66	15	10	667	18	2	663	15	0	6
7	78	11	11	79	3	1	791	11	0	785	18	11	7
8	91	3	6	91	18	0	919	0	6	911	14	9	8
9	104	2	6	105		11	1050	9	1	1041	4	9	9
10	117	9	2	118	11	11	1185	19	4	1174	11	6	10

N.B.—This Table is formed from Table II. in the same manner as Table VII.
was formed from Table I. [Vide Note to Table VII.]

TABLE IX.

Showing the Amount to which a Deposit of £10 (or £100) *per Annum*
will accumulate at the end of any number of Years up to 10, upon the
principle of Table VII.

Rates of Interest £3 2s. 6d. and £2 10s. per Cent.

	DEPOSIT OF £10 PER ANNUM.				DEPOSIT OF £100 PER ANNUM.			
No. of Years.	One Half withdrawable.		One Fourth withdrawable.		One Fourth withdrawable.		One Half withdrawable.	No. of Years.
	£	s.	d.		£	s.	d.		£	s.	d.	£	s.	d.	
1	10	5	7	10	5	11	102	19	4	102	16	3	1
2	20	17	0	20	18	0	209	0	0	208	10	6	2
3	31	14	5	31	16	4	318	3	9	317	4	7	3
4	42	18	0	43	1	3	430	12	7	429	0	4	4
5	54	7	11	54	12	10	546	8	7	543	19	8	5
6	66	4	5	66	11	4	665	13	10	662	4	8	6
7	78	7	8	78	17	0	788	10	6	783	17	3	7
8	90	18	0	91	10	1	915	0	10	908	19	8	8
9	103	15	5	104	10	8	1045	7	1	1037	14	0	9
10	117	0	3	117	19	2	1179	11	8	1170	2	7	10

N.B.—This Table is formed from Table III. in the same manner as Table VII.
was formed from Table I. [Vide Note to Table VII.]

TABLE X.

Showing the Amount to which a Deposit of £10 (or £100) *per Annum* will accumulate at the end of any number of Years up to 10, upon the principle of Table VII.

Rates of Interest 5 and 3 per Cent.

	DEPOSIT OF £10 PER ANNUM.			DEPOSIT OF £100 PER ANNUM.		
No. of Years.	One Half withdrawable.	One Fourth withdrawable.	One Fourth withdrawable.	One Half withdrawable.	No. of Years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1	10 8 0	10 9 0	104 10 0	104 0 0	1
2	21 4 5	21 7 5	213 14 6	212 4 0	2
3	32 9 7	32 15 10	327 18 3	324 16 2	3
4	44 4 1	44 14 7	447 6 2	442 1 0	4
5	56 8 4	57 4 4	572 3 6	564 3 1	5
6	69 2 9	70 5 7	702 15 8	691 7 3	6
7	82 7 10	83 18 10	859 8 5	823 18 7	7
8	96 4 3	98 4 9	982 7 10	962 2 6	8
9	110 12 5	113 4 0	1132 0 3	1106 4 7	9
10	125 13 1	128 17 2	1288 12 3	1256 10 10	10

N.B.—This Table is formed from Table IV. in the same manner as Table VII. was formed from Table I. [Vide Note to Table VII.]

TABLE XI.

Showing the Amount to which a Deposit of £10 (or £100) *per Annum* will accumulate at the end of any number of Years up to 10, on the principle of Table VII.

Rates of Interest 6 and 3 per Cent.

	DEPOSIT OF £10 PER ANNUM.			DEPOSIT OF £100 PER ANNUM.		
No. of Years.	One Half withdrawable.	One Fourth withdrawable.	One Fourth withdrawable.	One Half withdrawable.	No. of Years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1	10 9 0	10 10 6	105 5 0	104 10 0	1
2	21 7 6	21 12 2	216 1 3	213 15 5	2
3	32 16 2	33 5 7	332 15 7	328 1 11	3
4	44 15 7	45 11 6	455 14 11	447 15 8	4
5	57 6 4	58 10 8	585 6 10	573 3 0	5
6	70 9 1	72 3 11	721 19 3	704 10 9	6
7	84 4 7	86 12 1	866 0 7	842 6 2	7
8	98 13 8	101 16 0	1017 19 10	986 16 11	8
9	113 17 2	117 16 8	1178 6 5	1138 11 2	9
10	129 15 9	134 15 0	1347 10 5	1297 17 6	10

N.B.—This Table is formed from Table V. in the same manner as Table VII. was formed from Table I. [Vide Note to Table VII.]

TABLE XII.

Showing the Amount to which a Deposit of £10 (or £100) *per Annum*
will accumulate at the end of any number of Years up to 10, on the
principle of Table VII.

Rates of Interest 7 and 3 per Cent.

	DEPOSIT OF £10 PER ANNUM.			DEPOSIT OF £100 PER ANNUM.		
No. of Years.	One Half withdrawable.	One Fourth withdrawable.	One Fourth withdrawable.	One Half withdrawable.	No. of Years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1	10 10 0	10 12 0	106 0 0	105 0 0	1
2	21 10 8	21 16 10	218 8 5	215 7 0	2
3	33 2 10	33 15 5	337 11 2	331 8 6	3
4	45 7 3	46 8 8	464 7 0	453 12 6	4
5	58 4 9	59 17 8	598 17 1	582 7 7	5
6	71 16 3	74 3 6	741 15 6	718 2 11	6
7	86 2 10	89 7 5	893 14 0	861 8 4	7
8	101 5 5	105 10 6	1055 5 2	1012 14 3	8
9	117 5 2	122 14 3	1227 2 6	1172 12 1	9
10	134 3 4	141 0 0	1410 0 6	1341 13 9	10

N.B.—This Table is formed from Table VI. in the same manner as Table
VII. was formed from Table I. [Vide Note to Table VII.]

The attention of Industrial Associations is requested to the last three Tables.
[Vide Note to Table VI.]

DEFERRED ANNUITIES.

TABLE XIII.

Showing the accumulated Amount, or the Life Annuity (payable half-yearly), which a single Deposit of £10 will entitle a Depositor to receive at the end of stipulated periods; the whole of the Deposit, together with the accumulated Interest, upon the principle of Table I., to be returnable at six months' notice, in case of decease of Depositor, or of his desiring to cancel the transaction before the close of the period. It being further provided that a Depositor may at any time, before entering on the Annuity, withdraw One Fourth of the Sum itself deposited, on giving one week's notice.

Rates of Interest £3 10s. and £2 10s. per Cent., as explained at foot.

ANNUITY TO COMMENCE AT 60.			
Present Age.	Accumulated Amount.	Corresponding Annuity.	
		Male.	Female.
	£ s. d.	£ s. d.	£ s. d.
20	37 9 7	3 12 8	3 9 3
25	31 13 4	3 1 5	2 18 7
*30	26 15 6	2 11 11*	2 9 6
35	22 13 2	2 3 11	2 1 11
40	19 3 10	1 17 2	1 15 6
45	16 5 5	1 11 7	1 10 1
50	13 16 3	1 6 9	1 5 6
55	11 14 10	1 2 9	1 1 8

ANNUITY TO COMMENCE AT 65.			
Present Age.	Accumulated Amount.	Corresponding Annuity.	
		Male.	Female.
	£ s. d.	£ s. d.	£ s. d.
20	44 7 7	5 3 11	4 18 10
25	37 9 7	4 7 9	4 3 5
30	31 13 4	3 14 2	3 10 6
35	26 15 6	3 2 8	2 19 7
40	22 13 2	2 13 1	2 10 5
45	19 3 10	2 4 11	2 2 9
50	16 5 5	1 18 1	1 16 3
55	13 16 3	1 12 4	1 10 9
60	11 14 10	1 7 6	1 6 1

N.B.—The columns in this Table headed 'Accumulated Amount,' are computed on the principle of Table I., and at the same rates of interest as that Table, viz. 3½ per cent. on the unwithdrawable portion of the Deposit and the accumulated Interest, and 2½ per cent. on the withdrawable portion. The columns headed 'Corresponding Annuity' are deduced from the English Life Table at 3 per cent. An example is subjoined.

* *Example.*—A person aged 30 having deposited £10 will be entitled, on attaining the age of 60, to receive either a gross sum of £26 15s. 6d., or an Annuity of £2 11s. 11d. for the remainder of Life. Should he withdraw or die before attaining that age,—say for example at 55,—then he or his representatives would, in that case, receive, six months thereafter, the sum of £22 13s. 2d., or the amount corresponding to 25 years deposit, which is the same as at age 35, for 60.

TABLE XIV.

Showing the Accumulated Amount, or the Corresponding Annuity
(payable half-yearly), which a single Deposit of £10 will entitle a
Depositor to receive at the end of stipulated periods, on the principle
of Table XIII.

Rates of Interest £3 5s. and £2 10s. per Cent.

ANNUITY TO COMMENCE AT 60.			
Present Age.	Accumulated Amount.	Corresponding Annuity.	
		Male.	Female.
	£ s. d.	£ s. d.	£ s. d.
20	34 8 11	3 6 10	3 3 8
25	29 8 10	2 17 1	2 14 5
30	25 3 6	2 8 10	2 6 6
35	21 10 10	2 1 9	1 19 10
40	18 8 10	1 15 9	1 14 1
45	15 16 0	1 10 8	1 9 2
50	13 11 0	1 6 3	1 5 0
55	11 12 8	1 2 7	1 1 6

ANNUITY TO COMMENCE AT 65.			
Present Age.	Accumulated Amount.	Corresponding Annuity.	
		Male.	Female.
	£ s. d.	£ s. d.	£ s. d.
20	40 6 4	4 14 5	4 9 9
25	34 8 11	4 0 8	3 16 8
30	29 8 10	3 8 11	3 5 6
35	25 3 6	2 18 11	2 16 0
40	21 10 10	2 10 5	2 7 11
45	18 8 10	2 3 2	2 1 0
50	15 16 0	1 17 0	1 15 2
55	13 11 0	1 11 9	1 10 2
60	11 12 8	1 7 3	1 5 11

N.B.—The observations at the foot of Table XIII. apply in a similar manner
to the results of this Table.

TABLE XV.

Showing the Accumulated Amount, or the corresponding Annuity, (payable half-yearly), which a single Deposit of £10 will entitle a Depositor to receive at the end of stipulated periods, on the principle of Table XIII.

Rates of Interest £3 2s. 6d. and £2 10s. per Cent.

ANNUITY TO COMMENCE AT 60.			
Present Age.	Accumulated Amount.	Corresponding Annuity.	
		Male.	Female.
	£ s. d.	£ s. d.	£ s. d.
20	33 0 7	3 4 1	3 1 1
25	28 7 10	2 15 1	2 12 6
30	24 8 3	2 7 4	2 5 1
35	21 0 0	2 0 9	1 18 10
40	18 1 7	1 15 0	1 13 5
45	15 11 5	1 10 2	1 8 9
50	13 8 6	1 6 0	1 4 10
55	11 11 7	1 2 5	1 1 5

ANNUITY TO COMMENCE AT 65.			
Present Age.	Accumulated Amount.	Corresponding Annuity.	
		Male.	Female.
	£ s. d.	£ s. d.	£ s. d.
20	38 8 10	4 10 0	4 5 7
25	33 0 7	3 17 4	3 13 6
30	28 7 10	3 6 6	3 3 2
35	24 8 3	2 17 2	2 14 4
40	21 0 0	2 9 2	2 6 9
45	18 1 7	2 2 4	2 0 3
50	15 11 5	1 16 5	1 14 8
55	13 8 6	1 11 5	1 9 11
60	11 11 7	1 7 1	1 5 9

N.B.—The observations at the foot of Table XIII. apply in a similar manner to the results of this Table.

NEW SYSTEM OF ASSURANCE.

LIFE ASSURANCE

BY

ANNUAL DEPOSIT PREMIUMS.

TABLE XVI.

Showing the *Annual Deposit* Premium to Insure £100, receivable at Death, with a return by the Office, in addition, of all the Premiums paid but the first.

					£	s.	d.
Age 20	Annual	Deposit	Premium		2	1	6
,, 25	,,	,,	,,		2	10	1
,, 30	,,	,,	,,		3	1	3
,, 35	,,	,,	,,		3	15	1
,, 40	,,	,,	,,		4	14	9
,, 45	,,	,,	,,		6	0	4
,, 50	,,	,,	,,		8	1	3
,, 55	,,	,,	,,		11	10	4
,, 60	,,	,,	,,		16	17	0
,, 65	,,	,,	,,		24	3	6
,, 70	,,	,,	,,		37	13	2
,, 75	,,	,,	,,		59	4	0

Example.—A Deposit paid annually of £6 0s. 4d. at age 45, will secure £100 at death; and, in addition, the family, or representatives of the deceased, will receive back all the *premiums* paid but the first.

NEW SYSTEM OF LIFE ASSURANCE.

TABLE XVII.

Annual premium to Assure £100 for the whole term of life, payable at Death, Interest in the mean time being paid each succeeding year to the Assurer on all premiums he has paid.

Age.	£	s.	d.	Age.	£	s.	d.	Age.	£	s.	d.
20	2	17	3	39	4	3	4	58	7	9	6
21	2	18	3	40	4	5	4	59	7	15	7
22	2	19	3	41	4	7	4	60	8	1	8
23	3	0	3	42	4	9	5	61	8	7	6
24	3	1	4	43	4	11	6	62	8	13	9
25	3	2	6	44	4	13	9	63	9	0	3
26	3	3	8	45	4	16	1	64	9	7	5
27	3	5	0	46	4	18	7	65	9	15	3
28	3	6	3	47	5	1	4	66	10	3	10
29	3	7	7	48	5	4	4	67	10	13	3
30	3	8	10	49	5	7	6	68	11	3	7
31	3	10	2	50	5	11	6	69	11	15	3
32	3	11	6	51	5	14	10	70	12	7	11
33	3	13	0	52	5	18	11	71	13	0	1
34	3	14	6	53	6	3	3	72	13	17	1
35	3	16	2	54	6	7	9	73	14	11	11
36	3	17	10	55	6	12	9	74	15	6	5
37	3	19	7	56	6	18	0	75	15	19	6
38	4	1	5	57	7	3	8				

By the above table Assurers would secure three advantages :—

1st.—A fixed *diminution* each year in their *premiums*.

2nd.—A limited number of payments, as they practically cease as soon as the aggregate interest on the past premiums paid equals one year's premium.

3rd.—A deferred annuity for old age is secured equal to the sum of the interests.

Thus a person aged 25, might, if the rate of interest allowed were 4 per Cent., by a premium of £3 2s. 6d. for the first year, £3 for the second year, and so on, decreasing 2s. 6d. per annum, until the twenty-fifth year, secure in addition to the sum of £100 payable at death, a deferred increasing annuity, to commence on attaining the age of 50.

OLD AGE AND ENDOWMENT TABLE.

Showing the amount of Savings that would be effected by accumulating £6 a year with interest.

AT END OF YEARS.	AMOUNT OF SAVINGS AT									AT END OF YEARS.
	3 per Cent.			4 per Cent.			5 per Cent.			
	£	s.	d.	£	s.	d.	£	s.	d.	
1	6	0	0	6	0	0	6	0	0	1
2	12	3	8	12	4	10	12	6	0	2
3	18	10	11	18	14	8	18	18	4	3
4	25	2	0	25	9	8	25	17	3	4
5	31	17	1	32	10	0	33	3	1	5
6	38	16	3	39	16	0	40	16	3	6
7	45	19	6	47	7	11	48	17	1	7
8	53	7	1	55	5	9	57	5	11	8
9	60	19	3	63	10	0	66	3	3	9
10	68	15	9	72	0	10	75	9	5	10
11	76	17	0	80	18	5	85	4	10	11
12	85	3	1	90	3	2	95	10	1	12
13	93	14	2	99	15	3	106	5	7	13
14	102	10	5	109	15	1	117	11	5	14
15	111	11	10	120	2	11	129	9	6	15
16	120	18	10	130	19	0	111	18	11	16
17	130	11	5	142	3	9	155	0	11	17
18	140	9	9	153	17	6	168	15	11	18
19	150	14	1	166	0	7	183	4	9	19
20	161	4	6	178	13	5	198	8	0	20
21	172	1	3	191	16	5	214	6	5	21
22	183	4	5	205	9	10	231	0	8	22
23	194	14	5	219	11	2	248	11	9	23
24	206	11	3	234	10	0	267	0	3	24
25	218	15	2	249	17	7	286	7	4	25
26	231	6	5	265	17	5	306	13	8	26
27	244	5	2	282	10	2	328	0	5	27
28	257	11	9	299	16	2	350	8	5	28
29	271	6	4	317	16	0	373	18	10	29
30	283	9	1	336	10	3	398	12	8	30
31	300	0	4	355	19	5	424	11	4	31
32	315	0	5	376	4	3	451	15	11	32
33	330	9	5	397	5	2	480	7	9	33
34	346	7	8	419	3	0	510	8	1	34
35	362	15	6	411	18	4	511	18	5	35

Example.—A person setting aside £6 a year, or 10s. a month, for a child aged 3 years, would, with interest at 4 per Cent. have accumulated £153 17s. 6d. by the time the child attained the age of 21.

In case of previous death, or inability to continue the payments, the amount paid could be returned with interest at 3 per Cent., less — per Cent. towards expenses of bank or society.

Errata in Mathematical Appendices.

APPENDIX

ON

MORAL AND MATHEMATICAL EXPECTATION IN PROBABILITIES.

Art. 1.—In this Section we propose to illustrate, as briefly as the subject will admit, the distinction laid down by Laplace and other celebrated writers on Probability between *Mathematical* and *Moral* Expectation, which it is most important should be thoroughly understood by all who are engaged in Assurance business, or in any operations connected with events of a contingent character.*

Mr. Galloway has observed that in the theory of Probabilities the term *Expectation* is used to denote the value of a contingent Benefit, multiplied by the probability of the event taking place on which it depends. A little reflection will show that the Benefit should not be estimated with respect to its *absolute* value, but to the amount of *relative* advantage it affords the individual who is to receive it. Hence, when the circumstances of the individual are *not* taken into consideration, and regard is had merely to the absolute value of the benefit, the product of its amount by the chance of receiving it is the *Mathematical Expectation ;* but when such circumstances are regarded, a Relative or moral value, dependent upon them, is assigned to the benefit,—the product of which by the chance of obtaining it is termed the *Moral Expectation.*

2.—By way of illustration, there is the common error, which is made in the measurement of Life contingencies, of assuming that estimates, which are true on the average of a large number of cases, are equally so in isolated instances ; and actuarial opinions are not unfrequently given as a guide to purchasers of property dependent on the existence of human life, which, being deduced from Tables of Mortality constructed on the basis of a large number of lives, are not applicable to cases where but two or three lives are concerned.

* [For more extensive discussion of the theory of probabilities than would come within the range of this Treatise, we refer our readers to the works of Laplace and Poisson, which have been rendered into a most elegant form by our late lamented friend Mr. Galloway. Although it is in the works of Laplace and Poisson that the higher and more abstruse part of the theory of probabilities must be studied, yet a very clear explanation of the principles of the science, together with many interesting remarks on the uses and application of the theory, is to be found in the valuable little work of Lacroix, *Traité Elémentaire du Calcul des Probabilités :* Paris, 1833.]

3.—Thus, for instance, the value of a single Annuity, offered for sale, on a life aged 60, is of larger mathematical value, according to mortality tables, whatever be the rate of interest assumed, than, morally speaking, it would be worth the while of a purchaser to give for it, as in making his purchase he would have to guard against the chance of premature decease, which, although in a large number of cases likely to be compensated by Retarded deaths of other lives, would be fatal to the profit of his investment when occurring on one single purchase.*

4.—In like manner, in valuations of Leases on lives, for the purpose of substituting a *Term certain* for the Life Lease, a common error is made, of treating the *mathematical* value of the term certain as exactly equivalent to the value shown by the mortality table for the annuity on the life or lives involved, whereas considerations of *moral expectation* enter, which depend upon the number of similar cases the parties concerned are interested in.

Of Mathematical Expectation.

5.—This is estimated as follows :—

Suppose P and Q to be engaged in play. Let p and q be the respective probabilities of P's and Q's winning a game, upon the issue of which an amount, S, is staked : then the mathematical expectation of P is $p \cdot S$, and that of Q is $q \cdot S$. Now, if P and Q were to purchase these expectations, the respective amounts they ought to pay for them, or, in other words, to stake on the issue of the game, in order that they may play on equal terms, must be proportional to the expectations or probabilities of winning the game. If therefore P_1 be the sum staked by P, and Q_1 the sum staked by Q, we have

$$p \cdot S : q \cdot S :: P_1 : Q_1$$
or
$$p : q :: P_1 : Q_1$$
and consequently $p \cdot Q_1 = q \cdot P_1$.

---

* [Hence arises the necessity, to Isolated purchasers, of actually charging for the Insurance in some office of the life upon which the Annuity depends, instead of making the net provision, π_r, for a sinking fund, in the formula for the value of an annuity due, α_r, or $\dfrac{1}{d + \pi_r}$. This is effected by putting in the denominator, the office premium, p_r, for π_r, thus producing a value considerably less than α_r.]

Now, suppose the amount played for = the stakes, or
$$P_1 + Q_1 = S$$
then, since P expects to gain Q_1, the probability of winning which is p, we have, for the mathematical value of P's expectation of gain,
$$p \cdot Q_1$$
and in a similar manner we find the value of Q's expectation of gain,
$$q \cdot P_1.$$
Hence it is evident that when the stakes of each are in proportion to their respective probabilities of winning, the mathematical expectations of each player are equal; so that, subsequently to the deposit of the stakes, and prior to the decision of the event, the players may, without advantage or otherwise on either side, exchange places. Also, since the sum which the one must gain is equal to that which the other must lose, the product of $q \cdot P_1$, which is Q's expectation of gain, may be regarded as P's expectation of loss, or, if taken with a negative sign, as part of P's whole expectation, which then becomes
$$p \cdot Q_1 - q \cdot P_1$$
But
$$p \cdot Q_1 - q \cdot P_1 = 0$$
consequently, P's condition prior to the decision of the event is in nowise affected, speaking *mathematically*, by his having staked on the issue of the game.

6.—This result is correct, for although on a single trial the player P must either lose P_1 or gain Q_1, that is, either augment or diminish his fortune, yet if the play be undertaken on terms of mathematical equality and continue to a sufficient number of games, the probability, that the sum gained or lost *in the long run* shall be practically nothing, or that the sums gained and lost shall be very nearly equal, amounts to a certainty. (See Article 32, at end.)

7.—It is however practically impossible to suppose an indefinite repetition of the hazard; whence it appears that an individual or society of individuals must be guided by other considerations than the mere mathematical value of the expectation in their speculations.

For example : a Society of small resources should not risk £1,000 on a single or small number of speculations for the chance of gaining £10, although the chance might be 100 to 1 in its favour ; but the same remark would not apply to the case of risking £10 for the expectation of gaining £1000, even if the chances were 100 to 1 against the occurrence of the event. In both cases, however, the expectation would be purchased at its real mathematical value.

8.—Again, a person whose sole fortune consisted of a lottery-ticket, which has an equal chance of either turning up a prize of £1,000 or a blank, is, mathematically speaking, by the above formula, in an equally advantageous position as he who is in possession of £500 ; yet no man of ordinary prudence, if offered his choice of the two stakes, would hesitate as to which he ought to prefer. Common sense will prevent a man from risking a large sum, the loss of which would be attended with great privations or inconvenience, even when, mathematically speaking, the chances are considerably in his favour. It is evident, therefore, that two persons whose fortunes are very unequal, cannot engage in play on equal terms, notwithstanding that the chances in favour of each in respect of a single game may be precisely the same. For the one who has the larger fortune can repeat the hazard so often that the probability that his loss will not amount to any given sum will nearly be equal to a certainty, whereas the other, who cannot continue the play in the case of a loss, runs a considerable risk of being ruined. Hence it is obvious that in measuring the value of an expectation, the *number* of cases has to be considered, apart from the abstract theory of probability. Consequently, an individual dealing with contingent events must to a certain extent be guided by considerations of *relative* advantage. In other words, such contingent events will have to him a *moral* expectation value, different from the *mathematical* expectation value.

9.—By way of illustration : *A small Society cannot risk the same sums as a large Society in speculations, unless the former can make a much higher rate of profit than the latter.* Suppose a Society, possessing a capital of £100,000, considers it prudent to risk £10,000 in a certain speculation, then another Company, whose capital is £10,000, should only risk £1,000 in the same. To illustrate this by an extreme case : Suppose one Society can command pounds where another can command only pence ; what should the second do to preserve its relation unaltered to the first ? It is clear that if it engage in precisely the same kind of transactions, it must risk only one penny where the first risks £1. In this case, both, if either, would only become bankrupt together, and both pay the same percentage of their liabilities ; and if both gain, the profit would be the same percentage of their invested capital : the only difference between them, mathematically speaking, would be the name of the coin they deal in. Change the word "pound" into "penny," and the books of the first Society would become those of the second.

10.—There is, in addition, another circumstance which always is and must be in favour of the larger Society, viz. *the Expenses of Management;* since the outlay in a small Society cannot be proportionably less than the similar outlay in a larger; that is to say, by way of example, a Company with an Income of £20,000 can, in general, be managed for less than double the expense attending another with an income of £10,000.

11.—Moreover, a small Society cannot command the same range of choice as a large one for temporary investment, on account of the smallness of its resources; consequently it must select the best out of a more limited number than the larger Society can command. It is a well-known fact in the commercial world that large businesses can exist with lower profits than smaller ones, inasmuch as the Fluctuation fund must be a larger percentage of the whole in the latter case than in the former. The increase of large farms, large manufactories, etc., confirms this abundantly. A large Society and a small one, trading at the same rate of profits, may, in the words of Mr. de Morgan, be compared to a line-of-battle ship and a small boat in a rough sea: in which case, the first only oscillates, but the second is upset.

Of Moral Expectation.

12.—*Moral* considerations affecting pecuniary contingencies may be accurately measured by formulæ depending on the hypothesis first advanced by the celebrated Bernouilli,* viz. *That the relative value of any infinitely small sum, dx, is inversely proportionate to the Fortune, x, of the individual who expects to receive it, but directly proportionate to its absolute value.*

Then, the moral advantage arising from the contingency of receiving dx would be represented by $k\dfrac{dx}{x}$, and the relative or *moral value* of the fortune, which is susceptible of contingent augmentation, (its *absolute* value being x,) becomes

$$= \int k \frac{dx}{x}$$

---

* [Vol. 5, Petersburg Commentaries.

The theory of *moral* Expectation had its origin in a problem proposed by Nicholas Bernouilli to Montmort, which, on account of its having given rise to considerable discussion in the 'Petersburg Mémoires,' has been usually called the *Petersburg Problem.*]

$$= k \cdot \log x + h \qquad . \qquad . \qquad . \quad (1)$$

k and h being constants to be determined from the nature of the question.

Thus, if $x = F$, the original Fortune, the integration would be taken from $x = F$ to $x = x$, and the above moral value can be put under the form

$$k \cdot \log \frac{x}{F} \cdot \qquad . \qquad . \qquad . \qquad . \quad (2)$$

13.—To illustrate the application of this formula for moral values, let f_1, f_2, f_3, ... be sums to be received on the happening of certain contingent events, the probabilities of which are p_1, p_2, p_3, ... and let it be supposed that one or other of the events will necessarily happen ; then

$$p_1 + p_2 + p_3 + \ldots . = 1 \qquad . \qquad . \qquad . \quad (3)$$

and the *moral* or aggregate relative fortune of the individual, which is, by (1),* represented by

$$k \cdot \log x + h$$

will also
$$= p_1 \{ k \cdot \log (F + f_1) + h \}$$
$$+ p_2 \{ k \cdot \log (F + f_2) + h \}$$
$$+ p_3 \{ k \cdot \log (F + f_3) + h \} + \text{etc.} \cdot \qquad . \quad (4)$$

Hence $\quad x = (F + f_1)^{p_1} \cdot (F + f_2)^{p_2} \cdot (F + f_3)^{p_3} \cdot \text{etc.} \cdot \quad (5)$

and $x - F$ is the sum, which if it were certain to be received, would procure to the individual the same relative advantage as his contingent expectations.

14.—From eq. (5), we gather that, **even when the mathematical chances are equal,** there is a *moral disadvantage* in speculation.

To illustrate this : Let A, whose fortune is £1,000, make a bet with another, B, on an event, which presents an equal mathematical chance of either gaining,—the loser to pay, say £500, to the winner. What is the *moral* value of A's fortune after he has made the bet, and before the result is known?

Here $\qquad F = £1,000, \quad f_1 = £500, \quad f_2 = - £500,$

and $\qquad\qquad\qquad p_1 = p_2 = \frac{1}{2}$

∴ $\qquad\qquad x = \{ 1,000 + 500 \}^{\frac{1}{2}} \cdot \{ 1,000 - 500 \}^{\frac{1}{2}}$

$\qquad\qquad\quad = 500 \sqrt{3} = £866$ nearly,

consequently, the position of A is worse by £134 than it was before

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* [Laplace calls x the *fortune physique*, and $k \cdot \log x + h$ the *fortune morale*. See his *Théorie Analytique des Probabilités*, chap. 10, art. 11, p. 432.]

he made the bet: therefore, the moral disadvantage is equivalent to this sum, though the terms of the play, according to the mathematical theory, are equal.

If the bet be smaller in proportion to the fortune, say £100, then the moral value of A's £1,000, after having made an even bet involving a gain or loss of £100, is

$$= \{1,100 \times 900\}^{\frac{1}{2}}$$
$$= 300 \sqrt{11} = £995 \text{ nearly,}$$

which shows, in this case, a moral disadvantage of only £5, very much less than a fifth of that in the previous example, scarcely $\frac{1}{20}$th.

15.—As another illustration, take the case of two persons, A and B, whose fortunes are the same, £1,000 each, making a bet that £500 should be paid by A if he loses, and £50 to A if B loses, the odds being supposed and taken in the ratio of the bets, *i.e.* 10 to 1 ; then the moral value of A's and B's fortunes after the bet is made, but before the result is known, would be :—

For A's case,

(where $p_1 = \frac{10}{11}$ $F = 1,000$ $f_1 = 50$ $f_2 = -500$)
$$x = (F + f_1)^{p_1} \cdot (F + f_2)^{1-p_1}$$
$$= (1,050)^{\frac{10}{11}} \cdot (500)^{\frac{1}{11}} = £981.$$

For B's case,

$$x = (1,500)^{\frac{1}{11}} \cdot (950)^{\frac{10}{11}} = £990,$$

which shows that although, according to Art. 5, the mathematical expectations are equal when the stakes are in exact proportion to the chances, yet the *moral* expectations are no longer equal, when the bet is made and the result unknown.

16.—Conversely, if the problem in (14) be to find the value, p_1, of the *mathematical* chance, such that the *moral* value of A's fortune may remain nearly intact, or only affected to a trifling extent, say μ per pound, by his having made a bet.   Then

$$(F + f_1)^{p_1} \cdot (F - f_2)^{1-p_1} = F(1 - \mu)$$
$$\therefore \qquad \frac{(F + f_1)^{p_1}}{(F - f_2)^{p_1}} \cdot (F - f_2) = F(1 - \mu)$$
$$p_1 \{\log (F + f_1) - \log (F - f_2)\} = \log (1 - \mu) + \log F - \log (F - f_2)$$
$$\therefore \quad p_1 = \frac{\log (1 - \mu) + \log F - \log (F - f_2)}{\log (F + f_1) - \log (F - f_2)} \qquad . \quad (6)$$

Example : Let the fortune be £1,000, the sum risked £500, on

the chance of making a gain of £500 ; to find p_1, so that the *moral* value may differ from the mathematical by 1 per cent.

Here $$p_1 = \frac{\log 1\cdot 98}{\log 3} = \cdot 622$$

or the chances should be about 6 to 4 or 3 to 2 in his favour.

17.—*All risks, if only mathematically balanced, are disadvantageous.*—In order to prove this principle, suppose an individual, whose fortune is F, stakes a sum, R, with a chance, p, of winning. The stake to be won, by the hypothesis, is

$$\therefore \qquad = \frac{R\,(1 - p)}{p} \qquad \text{(See Art. 5.)}$$

and the value of the expectation by eq. (5) is

$$= (F + \frac{R\,(1 - p)}{p})^p \cdot (F - R)^{1-p} \quad . \qquad . \qquad . \quad (7)$$

If this be less than F, the bet has produced a moral disadvantage, and his pecuniary condition is worse than it was before he entered upon the speculation. Now the above result divided by F

$$= \frac{\{F\cdot p\cdot + R\,(1 - p)\}^p \cdot \{p\cdot (F - R)\}^{1-p}}{F\cdot p}$$

Putting this into logarithms, we have it

$$= p\cdot\log\left\{F\cdot p + R\,\overline{1 - p}\right\} + \overline{1 - p}\cdot\log\left\{p\cdot\overline{F - R}\right\} - \log p\cdot F$$

$$= (1 - p)\,p\int_0^R \left\{\frac{1}{p\cdot F + R\,(1 - p)} - \frac{1}{p\,(F - R)}\right\} dR.$$

in which the coefficient of dR is evidently negative for all positive values of R, the integral is therefore negative, whence the Expectation itself is negative.

18.—To determine what should be the contingent gain, G, that a person with a fortune, F, may without moral disadvantage, risk a sum, R, on a speculation of which the chance of gain is p ; in other words, what proportion G should bear to R.

Here $\qquad (F + G)^p \cdot (F - R)^{1-p} = F$

or $\qquad G = \{F^{\frac{1}{p}} \div (F - R)^{\frac{1-p}{p}}\} - F \quad . \qquad . \qquad . \quad (8)$

19.—Let $p = \frac{1}{2}$, and put $R = \dfrac{F}{m}$,

$$\therefore \quad G = \frac{F\cdot R}{F - R}$$

or in another form $\dfrac{1}{R} - \dfrac{1}{G} = \dfrac{1}{F}$ . . . . . (9)

Again, $G = \dfrac{m}{m-1} \cdot R$ . . . . (10)

20.—If $m = 2$ or $R = \dfrac{F}{2}$

$$G = 2\,R = F$$

whence we learn, *That a person should not stake half his fortune upon an even chance, unless the contingent gain be such as will double his fortune, or give him cent. per cent.*

21.—Let $R = F$, then $G = \infty$, or the sum to be gained by a speculation must be infinitely large to make it worth while to risk the whole of one's fortune upon an even chance.

22.—If, in formula (4), the quantities f_1, f_2, f_3, etc., be very small in comparison with F, the expression for the moral expectation, $x - F$, becomes very nearly

$$= p_1 f_1 + p_2 f_2 + p_3 f_3 \cdots \qquad . \qquad . \quad (11)$$

which is the *mathematical expectation ;*—that is to say, the *Moral and Mathematical expectations nearly coincide*, when the contingent benefits to be obtained from the speculation are very small in comparison with the fortune in possession before the risk is incurred.

23.—A corresponding result to the above arises when the risks, to which a given Capital is exposed, are so divided that the number of ventures may be large. Hence it is better for an Insurance Society that its funds and capital should be exposed to a number of small* risks, independent of each other, than to take the liability of a limited number of large policies, although the *mathematical* probability of loss be in both cases precisely the same. For example, the mathematical value of the risk on one policy of £10,000 on a life aged 30 is the same as the aggregate mathematical values of ten policies of £1,000 each on lives of the same age ; but the moral values of the expectations of the two kinds of risks are different.

As another illustration, take the case of a merchant with a capital of £4,000, besides goods of the value of £8,000, which must be

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* [See the formulæ and remarks on the subject of Loan Risks in Building Societies, in note, Div. II., p. 58, of Treatise on the subject.]

transported by sea : supposing $\frac{1}{10}$th to be the probability that the vessel will be lost in the voyage, what is the *moral expectation* of the merchant,—first in the case of the goods being transported in a single vessel ; and secondly, in the case of one-half being embarked in one vessel, and the other half in another.

I. If the goods be embarked in *one* ship, the merchant's absolute fortune will, in the event of the safe arrival of the ship, become £12,000 : and, in the event of her being lost, £4,000.   The probability of the first of these events is $\frac{9}{10}$, and that of the second, $\frac{1}{10}$; consequently, the moral value of his absolute fortune becomes, from formula (5),

$$X = (12,000)^{\frac{9}{10}} . (4,000)^{\frac{1}{10}} = £10,751 \text{ nearly,}$$

which is £449 less than the mathematical value by the probability $(\frac{9}{10})$ of the gain.

II. In the second case, supposing the merchandise to be embarked in two ships, we have three compound events to consider, viz. :—

1º. Both vessels may arrive in safety, the chance of which is

$$\frac{9}{10} \times \frac{9}{10} = \frac{81}{100}$$

2º. One of the ships may be lost, and the other arrive in safety : this may happen in two ways ;

∴ the chance is $2(\frac{9}{10} \times \frac{1}{10}) = \frac{18}{100}$.

3º. Both ships may be lost ; the chance of which is

$$\frac{1}{10} \times \frac{1}{10} = \frac{1}{100}.$$

If the first of these events take place, the Capital of the merchant will become

$$£4,000 + £8,000 = £12,000.$$

If the second happen, it will be

$$£4,000 + £4,000 = £8,000.$$

And if the third happen, it will be only £4,000.

Hence, substituting these numbers in the same formula,

$$X = (12,000)^{\frac{81}{100}} \times (8,000)^{\frac{18}{100}} \times (4,000)^{\frac{1}{100}}$$
$$= £11,033 \text{ nearly,}$$

which is £167 only below the mathematical expectation, and £282 in excess of the result on the hypothesis of the merchandise being risked on one ship ; and it may be easily shown in the same way, that the *moral* expectation is increased by an increase in the number of ships among which the risk is divided, and approaches its limit £7,200, which is the value of the mathematical expectation, or

$$\frac{9}{10} \times £8,000.$$

24.—It may, also, be shown that, whatever may be the risk of ruinous fluctuation to which a Society may be exposed in embarking a certain amount of Capital in each of a certain number of similar speculations, it is halved by employing one-fourth as much Capital in each of four times as many speculations, and so on. Mercantile men are perfectly aware of the general truth of this principle, but they very often imagine that they *halve* the risk by *doubling* the number of ventures; whereas they would have to be four times as many.

25.—*The theory of Moral Expectation enables us to assign the circumstances, in which it is advantageous or otherwise for Societies to grant, and for individuals to pay for policies insuring Property, dependent on particular hazards, such as Invalid Lives, Untried Risks, particular kinds and seasons of voyages, etc.* For this, we have three principal questions to consider :—

a. *What amount of premium, Y, the Insurer can pay to the Society without disadvantage.*

b. *What ratio his fortune should bear to the value of the sum speculated, in order that it may prove advantageous to insure at a given premium.*

c. *What Capital a Society ought to possess in order that it may, with probable advantage to itself and safety to the Insurer, accept a given risk.*

(a.) Let R be the sum which an Insurer has at risk, dependent upon an event, the probability of the favourable happening of which is p, and F his capital independently of R. Then the mathematical value of the Assurer's absolute fortune is

$$(F + R) - (1 - p) R = F + p \cdot R$$

if he insures, paying for the policy its net value, $(1 - p) R$; and *the moral value* $x = (F + R)^p \cdot F^{1-p}$
if he does not insure.

Consequently, according as

$$F + p \cdot R > \text{ or } < (F + R)^p \cdot F^{1-p}$$

it will be advantageous or otherwise to insure. To examine this, we must take the Logarithm of these expressions. The first

$$= \log (F + p \cdot R) = \int \frac{p \cdot dR}{F + p \cdot R}$$

The second $= p \cdot \log (F + R) + (1 - p) \log F$

$$= \int \frac{p \cdot dR}{F + R}$$

which is less than

$$\int \frac{p \cdot dR}{F + p \cdot R}$$

since p is a proper fraction.   Therefore, in general, Assurance is attended with advantage.

26.—In the above, let

$$Y' = (F + p \cdot R) - (F + R)^p \cdot F^{1-p} . \qquad . \quad (12)$$

This represents the sum the Insurer could afford to pay the Assurance Society in addition to the mathematical value of the risk, without moral disadvantage.   Hence, his relative fortune will be increased or diminished by insuring, according as he pays less or more than $\{(1 - p) R + Y'\}$.   In practice, the premiums paid, Y, may be considered to fall between the limits of $\overline{(1 - p \cdot R + Y')}$ and $\overline{(1 - p \cdot R)}$.   Hence, notwithstanding that the Assurer pays more than the mathematical value of the risk, he gains a moral advantage by the transaction.

27.—(b.) The amount of Capital, F, the Insurer should possess, so that it may be morally a matter of indifference to him whether he insures or not at a premium, Y, is the value of F determined from the equation

$$F + R - Y = (F + R)^p \cdot F^{1-p}$$

For example : Let R, the sum at risk on the event, $= \pounds10,000$, $Y = \pounds800$, and $p = \frac{19}{20}$; then we have

$$F + 10,000 - 800 = (F + 10,000)^{\frac{19}{20}} \cdot F^{\frac{1}{20}}$$

or $\qquad (F + 10,000)^{\frac{19}{20}} \cdot F^{\frac{1}{20}} - F = 9,200$

from which we find the value of F, by approximation, $= \pounds5,043$. Therefore, to neglect insuring for a policy of $\pounds10,000$ would not prove advantageous, unless his other capital amounts to more than $\pounds5,043$, even though the premium charged exceeds the mathematical value of the risk by $\pounds300$.

28.—(c.) The Capital, F', the Society granting the policy ought to possess, may be found in the same way.   Its capital, after accepting the risk of the sum R, for the premium Y, becomes $(F' + Y)$ should the vessel arrive in safety, and

$$(F' - R + Y)$$

in the event of her being lost ; therefore the moral expectation becomes

$$x = (F' + Y)^p \cdot (F' - R + Y)^{1-p}$$

which must $=$ the Society's original Capital, F', in order that neither advantage nor disadvantage may accrue in undertaking the risk. Therefore, supposing the numerical values of R, Y, p, and $1 - p$ to remain as before, the equation becomes

$$F'' = (F' + 800)^{\frac{10}{20}} \times (F'' - 9,200)^{\frac{1}{20}}$$

from which we find, by approximation,

$$F' = 14,243 \text{ nearly};$$

or there would be a moral disadvantage in a Society undertaking the risk of insuring a cargo with £10,000 for a premium of £800, unless its Capital amounts to £14,243, and should a less premium be demanded, the Capital should be still greater.

If $Y = £600$, which still exceeds the mathematical value of the risk, F' becomes £29,878.

29.—From the preceding we learn that a Company, with a large capital, may not only with safety engage in speculations, which might prove ruinous to another whose resources are more limited, but also with certainty derive a profit from them at a lower premium.

The smaller Company would consequently require a larger margin on its premiums than the richer Company, to guard against contingencies of loss in its speculations, setting aside all question of the expenses and fixed profit on capital required, these being usually included and provided for in the margin added to the premiums.*

30. — It follows that *an Office, that has but few cases of any particular kind of risk, must charge a larger margin over the theoretical premium than where it has a sufficient average ; otherwise, the moral value of its assets is less, after a Policy is granted and risk commenced, than before.* Also, that *an Office of small resources should not attempt risks of an unfavourable character, such as diseased lives, etc.*

31.—*If a Society enter into a given number of successive or simultaneously independent transactions of a contingent character, the combination, which, of all others, is* most likely *to happen, is that in which the number of losses is to the number of gains most nearly as the probability of losing any one to the probability of gaining it.*

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* [See Laplace and Traité Elémentaire de Lacroix, p. 132.]

Suppose there are g ways of gaining and l ways of losing, and that the number of speculations in question is n, depending on n events of the same sort.   In the developement of

$$(g + l)^n = g^n + ng^{n-1}l + \frac{n(n-1)}{1.2}g^{n-2}l^2 + \dots$$

we see, in the coefficients, the number of ways in which *all*, *all but one*, etc., may succeed ; and if we divide both sides by the whole possible number of cases, $(g + l)^n$, and let $\frac{g}{g+l} = p$, $\frac{l}{g+l} = q$, we have

$$p^n + n \cdot p^{n-1}q + \frac{n(n-1)}{1.2}p^{n-2}q^2 + \dots = 1$$

the terms of which express the probabilities that *all*, *all but one*, etc., will succeed.   The ratios of these successive terms to those which precede are

$$n \cdot \frac{q}{p}, \quad \frac{n-1}{2} \cdot \frac{q}{p}, \quad \frac{n-2}{3} \cdot \frac{q}{p}, \text{ etc.}$$

The $$\frac{\overline{r+1}\text{th term}}{r\text{th term}} = \frac{n-r+1}{r} \cdot \frac{q}{p} = T_r \text{ (say)}.$$

Let the rth term be the *greatest* ; that is, let T_r be *less* than unity, and T_{r-1} *greater* than unity, or

$$(n - r + 1)q < rp \qquad (n - \overline{r-1} + 1)q > (r-1)p$$
$$\therefore \quad (n + 1)q < r \qquad \therefore \qquad (n + 1)q > (r - 1)$$

But the rth term expresses the probability of losing $(r - 1)$ and gaining $(n - r + 1)$ of the speculations ; consequently, in n separate events, against each of which the probability is q, the most probable of all losses is the whole number next below $(n + 1)q$, which is *more likely* than any other *given* loss, though not more likely than any out of the other losses.

The preceding relations give

$$\frac{r - 1}{n - r + 1} > \frac{nq - p}{(n+1)p} < \frac{(n+1)q}{np - q}$$

Where n is a large number, the two fractions just found are very near to $\frac{q}{p}$, which establishes the theorem.

32.—Although the *most likely* combination in question is not to be necessarily counted upon, yet the greater the number of speculations entered into, the smaller will be the percentage of fluctuations to be reasonably looked for. Consequently, if a Society enter into 1,000 speculations, against each of which the chance is 9 : 1, then

it may anticipate the loss of 900 and the gain of 100, and the speculations must not be entered into unless upon terms that will make the 100 pay the risk of the whole 1,000 : or, if each successful speculation would bring £10, the sum risked by the Society must be less than the probability of gain, £1, in each of the 1000, in order to allow for the possible deviation from the *most likely* combination.

33.—The following principles are also important, not only in considering questions similar to the preceding, but in the measurement of the probability of events happening in a particular manner among the lives assured in a Company, where the probabilities depend on the experience it has had during previous periods, such as the nature of diseases attending certain occupations and certain districts, or the mortality among invalid lives in successive quinquennial periods.

1°. *The Probability*, p, *that a particular kind of event which has occurred n times already, will occur again is*

$$= \frac{n + 1}{n + 2} \quad . \qquad . \qquad . \qquad . \quad (13)$$

When n is very large, $p = 1$; that is to say, after a very large number of observations the probability of the event occurring as before approaches certainty.

Example :—

Thus, if an event, depending on unknown causes, and which can happen only in one of two ways, has been observed to happen once, the probability is two-thirds, or the odds are two to one in favour of its happening in the same way at the next occurrence.

2°. *The probability that the event will occur n' times the same way again is*

$$\frac{n + 1}{n + n' + 1} . \qquad . \qquad . \qquad . \quad (14)$$

Example :—

Thus, if there are five events, which must turn out in one of two ways, and the first two events have occurred in one way, it is three to one that the next will occur in like manner, and an even probability that all will occur the same. If, however, three events have occurred one way, then the chances are two to one that the remaining two will do so likewise.

3°. *The Probability that there exists a cause which necessitates the*

reproduction of an event that has been observed several times to-gether, increases more rapidly than the probability of the next hap-pening of the event.

For the probability that the event has not been produced by accident, but that it has been facilitated by causes, is

$$= \frac{2^{\overline{n+1}} - 1}{2^{\overline{n+1}}}$$

which increases more rapidly with n than (13).

For further details on these points, see Cournot 'Exposition de la Théorie des Chances et des Probabilités,' and Quetelet's 'Probabilities.'

APPENDIX

ON THE

VALUATION OF POST OBITS

AND

CONTINGENT REVERSIONS OR LEGACIES.

With some simple new Formulæ and Tables.

✦

By Life Annuities.

Art. 1.—Frequent complaints are made of the excessive amounts that are charged by way of *Post Obits* on property, in consideration of the payment of a sum in present money or of Life Annuities granted to the lives entitled to the property in Reversion. These complaints are particularly frequent (and generally with justice) when the parties concerned are private individuals, not conversant with the principles of calculation involved, or when erroneous formulæ are used by Actuaries who have no experience in dealing with such questions. We have consequently thought that the annexed Tables might be useful in enabling Solicitors and others to ascertain the fair amount for a Post Obit, or charge to be made on *Contingent Reversionary Legacies* or property, in the most general case of two lives, where a present annuity is *proposed* to be granted to *one life*, in consideration of a *Post Obit*, contingent on its surviving another, and provision is made for the annual cost of an Assurance in case of previous death. Where more than two lives are involved, the Tables would be too extensive for convenient publication.

2.—The subject has become more especially interesting of late,

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through the recent actions of *T.* v. *the H. and P. of W. Assurance Societies* in the Court of Queen's Bench, where the Plaintiff claimed on an Assurance connected with a Post Obit Bond ; and the following explanation of the cases may be serviceable.

3.—The Post Obit Bond in question was given for £14,000, to be paid by a life aged 35, in the event of his surviving another aged 74, in consideration of receiving, during the joint existence of the two lives, an annuity of £330 a year. The Plaintiff, having submitted a case to an Actuary, effected, it is said, assurances for £14,000 on the younger life, at an annual premium of from £4. 15s. to £5 per cent., costing him therefore, in the aggregate, nearly £700 a year.

4.—Various pleas were raised by the Companies resisting payment, one of which was, that the sum assured exceeded greatly the *legal assurable* interest which the Plaintiff had in the life. This one plea is supported by an examination of the case, submitted to the Actuary referred to, which was as follows :—

> " *What amount should a Post Obit be for, to be paid by a gentleman aged 35, if he outlives his father, aged 74?*
> "*The consideration to be an annual payment of £330, together with the necessary* insurance *on the* younger *life, which can be done at* 5 per cent., *he* not *being a* very good *one; the old life to be calculated to live* ten *years."*

5.—The Actuary's opinion was as follows :—

> " Assuming *that the older life will live* ten *years, and that the younger will* survive *the elder, I am of opinion that the amount of the Post Obit, to cover the necessary insurance, should not be less than £12,832."*

6.—The above answer being assumed as correct, the Plaintiff would not have been far out in effecting his Assurances for £14,000, and in requiring a Post Obit for that amount.

But, in the preceding case, two arbitrary suppositions were laid down as conditions of the question :—

> 1st. *That the older life would live ten years certain.*
> 2nd. *That the younger life would certainly survive him ;*

and such assumptions are constantly being made, to the injury of property mortgaged for Post Obits.

7.—On these assumptions the calculations would stand thus (treating the Annuities, for simplicity, as Annuities *due*, and interest at five per cent.) :—

Let A = *Accumulation of an Annuity of £1, paid at the beginning of the year, for ten years certain, at 5 per cent. interest ;*

a = *Annuity paid* . . . . . = £330 ;

O = *Post Obit :*

then $O.(.05)$ = *Annual premium paid by Assurer :*

$$\therefore \; \{ \; 330 + O \cdot (.05) \; \} \cdot A = O$$
$$\therefore O = \frac{A \times 330}{1 - A \cdot (\cdot 05)} \cdot \quad \cdot \quad \cdot \quad \cdot \quad \cdot \quad (1)^*$$
$$= \frac{13 \cdot 207 \times 330}{1 - (13 \cdot 207 \times \cdot 05)}$$
$$= £12,832 \text{ nearly.}$$

The preceding assumptions, however, are erroneous, as, by the Carlisle Law of Mortality, the joint existence of two lives, aged 35 and 74, is only worth, at five per cent., 5·881, or less than six years' purchase.

8.—The case would have been correctly stated thus :—

" *What amount should a Post Obit be for, to be paid by a gentleman, aged 35, if he survive his father, aged 74 ?*

" *The consideration to be an annual payment of £330, together with the necessary Insurance on the younger life, the premium for which may be taken at £5 per cent. per annum.*"

9.—The correct amount would then be obtainable thus by the ordinary mode of calculation :—

Let a = *Annuity* due, *or payable in advance each year to x, during the joint existence of two lives, aged x, y, for a Post Obit O, to be received if x survive y ;*

A = *Accumulated amount, with interest (by the end of the year when one has died), of £1 a year, payable in advance during the joint existence of x, y,*

* [See Table 9, page 305, *Treatise on Industrial Investment and Emigration*, (taking amount for eleven years, minus £1).]

$*2$

and $p_{x \cdot y}$ = *Office Annual Premium to assure* £1 *in case of x dying*
$\underset{(1)}{}$ *before y* :

then $O = \left(a + O \cdot \underset{(1)}{p_{x \cdot y}} \right) A.$

$$= \frac{A \cdot a}{1 - A \cdot \underset{(1)}{p_{x \cdot y}}} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (2)$$

10.—In the Plaintiff's case, $\underset{(1)}{p_{x \cdot y}}$, the premium, was taken at as
high as £5 per cent., and it would have been but fair to have taken
a corresponding *reduced expectation* for the joint duration of the two
lives, and a *lesser* Post-Obit Bond.   But, even assuming their joint
duration to be not less than that shown by the Carlisle Tables, and
allowing the Plaintiff £6 *per cent. compound interest* for his money,
or £1 per cent. per annum more than he professed to charge, by
formula (2), O would only equal £4708 (nearly).

11.—To justify a Post Obit of £14,000, an Annuity of £1020
should have been paid to the younger life ; and the fact that, while
the Annuity paid was only £330, the premiums were £700 a year,
should have suggested to the Judge and the Jury that the life was a
bad life, and that the assumptions made in the case submitted to the
Actuary, viz.—*that the older life would live ten years certain, and
that the younger life would survive him*, were erroneous.

12.—The result in Art. 9 might be proved elegantly thus, in a
form, it is believed, not to be found in works on Life Contingencies :

Since the amount of the Post Obit is receivable at the death of
either life,

If $\pi_{x \cdot y}$ = *Annual sinking fund, or Net premium (calculated at the
            rate of interest the purchaser is to receive), to pro-
            duce* £1 *at the death of the* first *of the two lives,
            x, y* ;

and $\underset{(1)}{p_{x \cdot y}}$ = *Annual* Office premium *to Assure* £1 *in case of x dying
            before y* ;

$$\text{then}\ \ \pi_{x \cdot y} - \underset{(1)}{p_{x \cdot y}}$$

is the Annuity which should be paid to life x for a Post Obit of £1.

Hence if $£\,a$ be the actual Annuity desired to be bought: Then the Post Obit, $O = \dfrac{a}{\pi_{x \cdot y} - \underset{(1)}{p_{x \cdot y}}}$ . . . . . (3)

which is identical with (2), since

$$A = \frac{1}{\pi_{x \cdot y}}.$$

13.—Whence this *Rule :—*

> *To Calculate the Amount of a Post Obit Bond.*

"From *the net annual premium,—or sinking fund, at five per cent. Carlisle (or such other rate of interest as may be allowed, and Law of Mortality selected), for the Assurance of* $£1$, *payable at the death of the first of two lives,—*Subtract *the Office annual premium for* $£1$ *Assurance against the* younger *life* dying *before the* older,—*And divide the* proposed *Annuity to the younger, by the difference.*" (See the Tables at page 7.)

14.—The rate of interest that should be involved in $\pi_{x \cdot y}$ varies in practice from 5 to 7 per cent., and $\pi_{x \cdot y}$ is easily calculated, with the aid of Joint Life Annuity Tables, from the formula given in our *Treatise on Copyhold Enfranchisement and Freehold Land Societies* (3rd ed., page 4, App.), viz.—

$$\pi_{x \cdot y} = \frac{1}{a_{x \cdot y}} - \frac{1}{a_{\infty}} \qquad . \qquad . \qquad . \qquad (4)$$

where $a_{x \cdot y}$ is the present value of an *Annuity due* on two lives, and a_{∞} the present value of a perpetuity $due = \dfrac{1}{d}.$

15.—The preceding assumes that the Annuity is payable at the *beginning** of the year, for which, if desired, the equivalent value of the Annuity, payable *half-yearly* or quarterly, can be substituted; but this should *not* be done, unless interest on the Post Obit is

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* [It is worthy of attention that, if formulæ relating to Life Contingencies are made to depend, when practicable, on but *one unknown* quantity, and to involve symbols for *annuities due* or payable at the *beginning*, instead of at the *end* of each year, their forms are not only more elegant, but more simple for practical use and remembrance. Such forms are also preferable, as they are then analogous to formulæ for *premiums*, which are customarily payable at the *beginning* of the year; and they can be as easily adapted to cases of *half-yearly* or quarterly Annuities, as formulæ involving Annuities due at the *end* of the

receivable in the event of *delay occurring* in the settlement by the end of the year that one life dies; and although such delay would not in general arise if the *assured life die first*, it might be the case if the *older* die first, and there be delay in the younger coming into the estate. This suggests the propriety of adding some margin for the expenses that may be incurred by the purchaser in the recovery of the amount of his Post Obit.

16.—If, after n years have elasped, the holder of a Post Obit, O, desire to sell it, the value would be

$$= O\left(\pi_{x+n,\,y+n} - \pi_{x.\,y}\right) . a_{x+n,\,y+n}$$

$$= O\left(1 - \frac{a_{x+n,\,y+n}}{a_{x.\,y}}\right) . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (5)$$

It may be remarked incidentally, that the coefficient of O is a neat formula for the *value of a Policy*.

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year. It is an objection to existing works on Life Contingencies, that this analogy is disregarded. By way of illustration (see our Treatise on Copyholds):—

If $a_x =$ Value of Annuity *due* on life x; using the Greek letter Alpha.

$\quad \alpha_x =$ Value of a perpetuity due, or an Annuity for ever;

and $S_x =$ Net single premium for Assurance, or present value of £1 receivable at death, of life x:—

$$\therefore d = \frac{i}{1 + i} = \frac{1}{\alpha_x} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (1)$$

$$a_x = \alpha_x\,(1 - S_x) \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (2)$$

$$= \frac{1}{d + \pi_x} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (3)$$

$A_x =$ amount of annual premium of £1, by end of year after death of x.

$$= \frac{1}{\pi_x} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (4)$$

$$d = \frac{1}{a_x} - \frac{1}{A_x} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (5)$$

$$\therefore \Delta\left(\frac{1}{a_x}\right) = \Delta\left(\frac{1}{A_x}\right) \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (6)$$

$$S_x = 1 - \frac{a_x}{\alpha_x} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (7)$$

$$= 1 - d . a_x \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (8)$$

$$= \frac{\pi_x}{d + \pi_x} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (9)$$

$$\pi_x = \frac{d . S_x}{1 - S_x} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (10)$$

$$= \frac{1}{a_x} - \frac{1}{\alpha_x} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (11)$$

$$= \frac{1}{a_x} - d \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (12)]$$

Art. 17.

TABLE *for calculating the* Annuity *to be granted in purchase of a* Post-Obit Bond *or* Contingent Reversionary Legacy *of* £100, *payable on the contingency of one life* (*A*) surviving *another* (*B*).

(The Annuity is the difference between Columns 1 and 2.)

Ages.		Column 1.			Column 2.
		Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if *A survive B*, inclusive of cost of insuring the chance of *A* dying before *B*, allowing interest at			Deduction to be made for rate of insurance of £100, payable should *A die before B.*
A.	B.	5 per cent.	6 per cent.	7 per cent.	Office.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
20	20	2 0 8	1 18 3	1 16 3	1 8 7
	25	2 3 8	2 1 2	1 19 2	1 7 8
	30	2 7 6	2 5 0	2 2 10	1 6 9
	35	2 11 10	2 9 0	2 6 7	1 5 10
	40	2 17 11	2 14 10	2 12 2	1 4 11
	45	3 4 8	3 1 1	2 18 0	1 4 1
	50	3 15 5	3 11 5	3 7 10	1 3 2
	55	4 13 1	4 9 0	4 5 4	1 2 4
	60	5 17 9	5 13 6	5 9 8	1 1 6
	65	7 4 0	6 19 5	6 15 2	1 0 8
	70	9 8 0	9 3 3	8 19 0	0 19 9
	75	12 9 7	12 4 6	11 19 9	0 19 0
	80	15 13 9	15 8 5	15 3 5	0 18 3
	85	20 13 5	20 8 2	20 3 4	
25	25	2 6 7	2 4 1	2 1 11	1 12 4
	30	2 10 4	2 7 8	2 5 5	1 11 2
	35	2 14 5	2 11 7	2 9 1	1 10 0
	40	5 0 4	2 17 3	2 14 7	1 8 10
	45	3 6 11	3 3 6	3 0 5	1 7 8
	50	3 17 6	3 13 7	3 10 1	1 6 8
	55	4 15 2	4 11 1	4 7 5	1 5 8
	60	5 19 10	5 15 6	5 11 7	1 4 9
	65	7 5 10	7 1 3	6 17 1	1 3 10
	70	9 9 9	9 5 0	9 0 8	1 2 9
	75	12 10 11	12 6 2	12 1 11	1 1 9
	80	15 15 1	15 9 11	15 5 1	1 0 10
	85	20 14 10	20 9 6	20 4 8	

Annuity for the Purchase of a Post-Obit Bond—continued.

| Ages. | | Column 1. Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if *A survive B*, inclusive of cost of insuring the chance of *A* dying before *B*, allowing interest at | | | Column 2. Deduction to be made for rate of insurance of £100, payable should *A* die before *B*. |
A.	B.	5 per cent.	6 per cent.	7 per cent.	Office.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
30	30	2 13 10	2 11 1	2 8 10	1 16 9
	35	2 17 8	2 14 10	2 12 5	1 15 3
	40	3 3 5	3 0 4	2 17 9	1 13 10
	45	3 9 9	3 6 4	3 3 3	1 12 4
	50	4 0 0	3 16 4	3 12 10	1 10 11
	55	4 17 8	4 13 9	4 10 1	1 9 8
	60	6 2 3	5 18 1	5 14 5	1 8 7
	65	7 8 4	7 3 10	6 19 9	1 7 7
	70	9 12 5	9 7 8	9 3 4	1 6 8
	75	12 13 6	12 8 11	12 4 8	1 5 8
	80	15 17 9	15 12 7	15 7 11	1 4 9
	85	20 17 7	20 12 3	20 7 5	
35	35	3 1 3	2 18 3	2 15 8	2 1 5
	40	3 6 7	3 3 6	3 0 9	1 19 6
	45	3 12 8	3 9 2	3 6 0	1 17 7
	50	4 2 9	3 18 10	3 15 5	1 15 8
	55	5 0 0	4 16 0	4 12 5	1 13 9
	60	6 4 5	6 0 4	5 16 7	1 12 3
	65	7 10 4	7 5 10	7 1 9	1 11 0
	70	9 14 2	9 9 5	9 5 0	1 9 9
	75	12 15 3	12 10 7	12 6 3	1 8 7
	80	15 19 2	15 14 1	15 9 4	1 7 4
	85	20 18 11	20 13 6	20 8 7	
40	40	3 11 8	3 8 5	3 5 6	2 7 9
	45	3 17 3	3 13 8	3 10 6	2 5 4
	50	4 6 10	4 2 11	3 19 5	2 2 9
	55	5 3 11	4 19 10	4 16 2	2 0 3
	60	6 7 11	6 3 11	6 0 3	1 18 0
	65	7 13 9	7 9 2	7 5 1	1 16 3
	70	9 17 6	9 12 10	9 8 6	1 14 9
	75	12 18 9	12 14 0	12 9 9	1 13 6
	80	16 2 10	15 17 8	15 12 10	1 12 8
	85	21 2 6	20 17 2	20 12 3	

Annuity for the Purchase of a Post-Obit Bond—continued.

Ages.		Column 1. Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if *A survive B*, inclusive of cost of insuring the chance of *A* dying before *B*, allowing interest at			Column 2. Deduction to be made for rate of insurance of £100, payable should *A die before B*.
A.	B.	5 per cent.	6 per cent.	7 per cent.	Office.
		£. s. d.	£. s. d.	£. s. d.	£. s. d.
45	45	4 2 1	3 18 4	3 14 11	2 14 4
	50	4 11 0	4 7 0	4 3 5	2 11 0
	55	5 7 5	5 3 2	4 19 4	2 7 6
	60	6 10 10	6 6 8	6 2 10	2 4 1
	65	7 15 11	7 11 3	7 7 1	2 1 0
	70	9 19 2	9 14 5	9 10 0	1 18 3
	75	13 0 0	12 15 4	12 11 0	1 16 0
	80	16 3 10	15 18 8	15 14 0	1 14 5
	85	21 3 9	20 18 4	20 13 3	
50	50	4 19 1	4 14 9	4 10 10	3 4 10
	55	5 14 8	5 10 3	5 6 2	3 0 5
	60	6 17 3	6 12 11	6 8 11	2 15 11
	65	8 1 2	7 16 6	7 12 1	2 11 4
	70	10 3 6	9 18 7	9 14 0	2 6 9
	75	13 3 4	12 18 6	12 14 1	2 2 9
	80	16 6 2	16 0 11	15 16 1	1 19 2
	85	21 5 4	20 19 10	20 14 9	
55	55	6 9 6	6 5 0	6 0 11	4 3 2
	60	7 11 6	7 7 0	7 3 0	3 17 10
	65	8 14 4	8 9 7	8 5 2	3 12 6
	70	10 15 9	10 10 9	10 6 1	3 6 7
	75	13 15 2	13 10 2	13 5 7	3 1 4
	80	16 16 9	16 11 4	16 6 4	2 16 7
	85	21 15 0	21 9 5	21 4 3	
60	60	8 13 0	8 8 7	8 4 7	5 9 2
	65	9 14 10	9 10 1	9 5 10	5 3 0
	70	11 15 8	11 10 8	11 6 1	4 16 6
	75	14 15 0	14 10 1	14 5 7	4 10 7
	80	17 16 3	17 10 10	17 5 10	4 5 7
	85	22 14 8	22 8 11	22 3 7	

Annuity for the Purchase of a Post-Obit Bond—continued.

| Ages. | | Column 1. Gross Annual Payment to purchase a Post Obit or Contingent Reversionary Legacy of £100, receivable if *A survive B*, inclusive of cost of insuring the chance of *A* dying before *B*, allowing interest at | | | Column 2. Deduction to be made for rate of insurance of £100, payable should *A die before B.* |
A.	B.	5 per cent.	6 per cent.	7 per cent.	Office.
		£. *s.* *d.*	£. *s.* *d.*	£. *s.* *d.*	£. *s.* *d.*
65	65	10 14 6	10 9 6	10 5 0	6 14 5
	70	12 13 4	12 8 2	12 3 5	6 5 3
	75	15 11 2	15 6 1	15 1 5	5 16 8
	80	18 10 2	18 4 7	17 19 4	5 8 5
	85	23 7 4	23 1 6	22 16 1	
70	70	14 10 1	14 4 7	13 19 6	8 19 11
	75	17 6 5	17 1 0	16 16 9	8 9 2
	80	20 2 3	19 16 4	19 10 10	7 18 6
	85	24 16 6	24 10 1	24 4 2	
75	75	20 2 11	19 17 6	19 12 6	
	80	22 16 9	22 10 10	22 5 3	
	85	27 9 11	27 3 5	26 17 3	
80	80	25 6 5	25 0 3	24 14 7	
	85	29 15 7	29 8 7	29 1 11	
85	85	33 19 1	33 11 5	33 4 2	

EXAMPLE:—*A Life* 35 *should receive an Annuity due of* £11. 2s. *during his joint existence with another,* 75, *in consideration of a Post Obit of* £100, *supposing that the purchaser can Assure the life against* 75 *for a premium of* £1. 8s. 7d. *per cent. per annum, and is allowed to charge* 6 *per cent. interest.*

Hence for a Post Obit of £14,000 *an Annuity of* £1554 *should be given.* (*See case as stated in Article* 3.)

As to Purchase by Present Values.

Art. 18.—If, instead of an *Annuity*, a *present* cash sum is to be paid to x, for a Post Obit of £1, or in purchase of a Contingent Reversionary Legacy of £1, dependent on x surviving y, the price should be,—

The present net value of £1 receivable at the death of the *first* of the two lives, less the Office *single* premium for the contingent Assurance of x dying before y ;

$= (S_{x \cdot y})$ or net *single* premium at the rate of interest proposed to be received by the purchaser

$- \left(S_{x \cdot y} \atop (1) \right)$ at Office rate.

This result is equivalent to

$\pi_{x \cdot y} \cdot (a_{x \cdot y}$ taken at 5, 6, or 7 per cent. interest)

$- p_{x \cdot y} \cdot (a_{x \cdot y}$ taken at 3 or 4 per cent. interest),
(1)

the reason being, that the purchaser is entitled to *deduct* from the *Present Value* of the total annual cost of the Post Obit (discounted at the rate of profit he is to make, viz. 5, 6, or 7 per cent.) the *Present Value* of the Office annual premium for the Contingent Assurance (discounted at the Office rate of interest, which would be 3 or 4 per cent.).

19.—Some writers recommend the use of the following formula (which gives a lesser present Value), viz. :—

$$1 - (d + p_{x \cdot y}) \cdot a_{x \cdot y}$$
$$(1)$$

in which $d = \dfrac{i}{1 + i}$, or annual interest *due* of £1, and is usually taken at 5 per cent. for the advantage of the purchaser, whilst $a_{x \cdot y}$ is taken at a lower rate, that is, 3 per cent. The first two terms, $1 - d \cdot a_{x \cdot y}$, would coincide with $S_{x \cdot y}$ or $\pi_{x \cdot y} \cdot a_{x \cdot y}$ in the preceding article, if one *same* rate of interest were involved in both expressions.

20.—The introduction of two rates of interest in the first two terms of the above, viz. :—

$$1 - (d)_{5 \text{ per cent.}} \cdot (a_{x \cdot y})_{3 \text{ per cent.}}$$

as the value of a Reversion of £1, receivable at the death of the first of two lives (without Assurance), is scarcely equitable; for the Seller is made to allow the Purchaser, instead of d_5, the supposed 5 per cent. yearly interest *due*, its present value discounted at 3 per cent., which is equivalent to allowing a much higher rate.

21.—A like form,

$$1-(d)_{5\,\text{per cent.}} \cdot (a_x)_{3\,\text{per cent.}} \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

has also been strongly recommended by some Actuaries as a just and proper present value for a *Reversion of £1 depending on a single life* in place of the usual form

$$(S_x)_{5\,\text{per cent.}} \text{ or } 1-(d)_{5\,\text{per cent.}} \cdot (a_x)_{5\,\text{per cent.}} \quad . \quad . \quad (2)$$

which is the expression for the single premium or present value of £1 at death of a life x discounted at 5 per cent.

The first form (1) differs from (2) by

$$(d)_{5\,\text{per cent.}} \cdot \{(a_x)_{3\,\text{per cent.}} - (a_x)_{5\,\text{per cent.}}\},$$

or the difference between the present values of a Life Annuity $(d)_{5\,\text{per cent.}}$ at 3 and 5 per cent., but it cannot be supported by any satisfactory reasoning, and is objectionable from its giving *negative* results for ages under the zero point, corresponding to

$$1-(d)_{5\,\text{per cent.}} \cdot (a_x)_{3\,\text{per cent.}} = 0,$$

or $\qquad (a_x)_{3\,\text{per cent.}} = \dfrac{1}{(d)_{5\,\text{per cent.}}} = (a_\infty)_{5\,\text{per cent.}}$

that is, *when the Life Annuity due at 3 per cent. at age $x =$ the value of a* perpetuity *due at 5 per cent.* $= 21$.

22.—Our own preference would, perhaps, be in favour of the formula S_x or

$$1-d \cdot a_x$$

in which a higher rate of interest, such as 6 or 7 per cent., should be used throughout;—as we are prepared to recognize that a 5 per cent. discount by the formula S_x is not sufficiently advantageous to satisfy purchasers; considering they run the risk of locking up their money a long time before the Reversion falls in.

23.—But a much more satisfactory form may be deduced as follows (analogous to that in the preceding Articles on Post Obits), and is worthy of consideration, as it does not yet appear to have been noticed by other writers :—

Let $\quad (\pi_x)_5 =$ net *annual premium or sinking fund to realize £1 at death of x at 5 per cent. ;*

then $(\pi_x)_5$ is the immediate Annuity *due* that might be granted to the Reversioner in purchase of a Reversion or Post Obit of £1, receivable at death of x, crediting the purchaser with 5 per cent. for the money he advances each year.

Now if the Reversion is to be bought by a *single* present sum, the *Present Value* of the *Annuity* $(\pi_x)_5$ should be given, which, by customary rule for purchasing *Life Annuities*,

$$=\frac{(\pi_x)_5}{d_5+p_x} \quad . \quad . \quad . \quad . \quad . \quad (3)$$

*where p_x is Office premium to insure £1 at death of x.

24.—From the theoretical value of a Reversion, whatever formula be used, a deduction would have to be made, if Legacy or other duty is payable, or if legal or other expenses are anticipated to arise at the time of coming into the Reversion.

25.—For comparison, we place side by side these three forms and their numerical values at various ages, which we will designate by numbers (1), (2), (3). (See next page.) It will be seen that if a person aged 20 were entitled to a Reversion of £100, and the interest of money were 5 per cent., formula (2) would make its value £19·92, and the newly-suggested formula (3) £18·24; while, by the method now in frequent use, viz. (1), the party would not only have nothing to *receive*, but would actually be called upon to *pay* the Purchaser £8·01; thus making the possession of such Reversion a positive liability or debt. This absurd result, apart from any abstract argument, is conclusive proof that the formula from which it is obtained must be radically defective, and cannot be founded on any correct or equitable principle. The positive values given by this latter method at older ages also present equally strange results, for at age 40 it makes the value of £100 in reversion, at 5 per cent., worth only £13·64; whereas the discounted value of the same is £31·48, or, even at 7 per cent., £22·51.

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* [The value of an Annuity due of £1 is a_x, which used to be taken formerly at 5 per cent., and is

$$=\frac{1}{d_5+(\pi_x)_5} \quad . \quad . \quad . \quad . \quad \text{(see note p. 6)}$$

The modern writers substitute, in the denominator, p_x, the Office annual premium for $(\pi_x)_5$, the net premium at 5 per cent.

It may be mentioned incidentally that the ages at which the present Value $\left(S_x \text{ or } \dfrac{\pi_x}{d+\pi_x}\right)$ of a Reversion of £1 is $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, or $\dfrac{1}{f}$, correspond to the ages at which the annual premiums are equal to d, $\dfrac{d}{2}$, $\dfrac{d}{3}$, or $\dfrac{d}{f-1}$, respectively.

Thus P. V. of a Reversion of £100 is $\dfrac{100}{3}$, or £33. 6s. 8d. at age where Net annual premium is $\dfrac{d_5}{2}$ or £2·38 per cent. (See note to p. 5.)

In like manner Practical Estimates can be read off from an Office Table of Annual Life Assurance Premiums.]

COMPARATIVE TABLE *of the Values of £1 in Reversion on a Single Life by various formulæ* (1), (2), (3).

3 PER CENT. By (2) or S_3 or $1 - d_3$ $(\alpha_r)_3$ or $\dfrac{(\pi_x)_3}{d_3 + (\pi_r)_3}$.

5 PER CENT. By (1) or $1 - d_5(\alpha_x)_3$ or $\dfrac{(\pi_x)_3 - (d_5 - d_3)}{d_3 + (\pi_x)_3}$.

,, ,, (2) or S_5 or $\dfrac{(\pi_r)_5}{d_5 + (\pi_r)_5}$.

,, ,, (3) $\dfrac{(\pi_r)_5}{d_5 + p_r}$. New Form recommended.

6 PER CENT. By (2) or S_6 or $\dfrac{(\pi_r)_6}{d_6 + (\pi_r)_6}$.

,, ,, (3) $\dfrac{(\pi_r)_6}{d_6 + p_r}$. New Form recommended.

7 PER CENT. By (2) or S_7 or $\dfrac{(\pi_x)_7}{d_7 + (\pi_r)_7}$.

Age.	3 per cent. (2) or S_x	5 per cent. (1) $1-d_5(\alpha_x)_3$	(2) or S_x	(3) New Form.	6 per cent. (2) or S_x	(3) New Form.	7 per cent. (2) or S_x
20	·3390	−·0801	·1992	·1824	·1603	·1465	·1326
21	·3446		·2035		·1640		·1358
22	·3504		·2082		·1681		·1393
23	·3564		·2131		·1724		·1431
24	·3625		·2182		·1769		·1471
25	·3681		·2237		·1817		·1514
26	·3755		·2292		·1867		·1558
27	·3822		·2350		·1920		·1605
28	·3889		·2409		·1972		·1653
29	·3953		·2463		·2021		·1696
30	·4013	+·0215	·2513	·2289	·2064	·1863	·1733
31	·4073		·2563		·2108		·1771
32	·4136		·2616		·2155		·1812
33	·4201		·2673		·2205		·1856
34	·4269		·2733		·2259		·1905
35	·4340		·2797		·2317		·1956
36	·4412		·2863		·2378		·2011
37	·4487		·2932		·2441		·2068
38	·4562		·3002		·2506		·2128
39	·4639		·3075		·2574		·2189
40	·4716	·1364	·3148	·2833	·2640	·2352	·2251
41	·4789		·3217		·2704		·2308
42	·4862		·3285		·2767		·2365
43	·4935		·3354		·2829		·2421
44	·5011		·3426		·2896		·2481

Age	3 per cent. (2) or S_r	5 per cent. (1) $1-d_5(a_r)_3$	5 per cent. (2) or S_r	5 per cent. (3) New Form.	6 per cent. (2) or S_r	6 per cent. (3) New Form	7 per cent. (2) or S_r
45	·5089		·3501		·2965		·2544
46	·5169		·3581		·3040		·2613
47	·5254		·3666		·3120		·2687
48	·5344		·3759		·3209		·2770
49	·5441		·3861		·3308		·2864
50	·5543	·2716	·3971	·3520	·3416	·2994	·2968
51	·5651		·4090		·3535		·3083
52	·5760		·4212		·3656		·3202
53	·5870		·4337		·3780		·3324
54	·5981		·4465		·3909		·3451
55	·6095		·4597		·4043		·3584
56	·6210		·4732		·4181		·3723
57	·6326		·4871		·4324		·3867
58	·6441		·5010		·4469		·4012
59	·6551		·5143		·4606		·4151
60	·6653	·4530	·5267	·4601	·4734	·4098	·4280
61	·6744		·5375		·4844		·4392
62	·6833		·5482		·4955		·4503
63	·6922		·5591		·5068		·4617
64	·7016		·5707		·5187		·4739
65	·7111		·5826		·5313		·4866
66	·7210		·5951		·5444		·5001
67	·7312		·6082		·5583		·5145
68	·7417		·6219		·5729		·5297
69	·7525		·6361		·5881		·5456
70	·7634	·6133	·6507	·5603	·6039	·5158	·5623
71	·7746		·6659		·6205		·5800
72	·7852		·6804		·6364		·5969
73	·7948		·6936		·6507		·6122
74	·8033		·7052		·6635		·6259
75	·8103		·7148		·6740		·6370
76	·8172		·7242		·6842		·6479
77	·8235		·7329		·6938		·6581
78	·8300		·7418		·7035		·6685
79	·8371		·7519		·7147		·6805
80	·8437	·7446	·7612	·6479	·7250	·6136	·6917

NOTE.—The following are the Constants occurring in the above formulæ :—

$$d_3 = ·0291.$$
$$d_5 = ·0476.$$
$$d_6 = ·0566.$$
$$d_7 = ·0654.$$

The Variables may be found as follows :—

p_r in Table 1, page 51, for Office Annual Premiums.

(π_r) in the following Table, Art. 26, page 16.

Art. 26.

TABLE *of the Value of* π_x, *the Annual Premium* (due), *to assure* £100 (*or Sinking Fund* due *to accumulate* £100) *by the end of the year of death of a Person aged* x, *at* 5 *per cent. interest, Carlisle Law, Net.*

x	π_x			x	π_x		
	£.	s.	d.		£.	s.	d.
20	1	3	9	51	3	5	11
21	1	4	5	52	3	9	5
22	1	5	1	53	3	13	0
23	1	5	10	54	3	16	11
24	1	6	8	55	4	1	1
25	1	7	6	56	4	5	7
26	1	8	4	57	4	10	6
27	1	9	3	58	4	15	9
28	1	10	3	59	5	0	10
29	1	11	2	60	5	6	0
30	1	12	0	61	5	10	8
31	1	12	10	62	5	15	7
32	1	13	9	63	6	1	0
33	1	14	9	64	6	6	9
34	1	15	10	65	6	13	1
35	1	17	0	66	7	0	1
36	1	18	3	67	7	8	1
37	1	19	6	68	7	16	8
38	2	0	11	69	8	6	7
39	2	2	4	70	8	17	8
40	2	3	9	71	9	10	1
41	2	5	2	72	10	2	10
42	2	6	7	73	10	15	7
43	2	8	1	74	11	7	11
44	2	9	8	75	11	18	9
45	2	11	10	76	12	10	1
46	2	13	2	77	13	1	4
47	2	15	2	78	13	13	8
48	2	17	5	79	14	8	8
49	2	19	11	80	15	4	0
50	3	2	9				

NOTE.—[The Equivalents of π_x are—

$$\pi_x = \frac{1}{A_x} = \frac{S_x}{a_x} = \frac{1}{a_x} - \frac{1}{a_\infty} = \frac{S_x}{a_\infty(1-S_x)} = \frac{1}{a_x} - d.$$

(See Appendix, page 4, 'Treatise on Copyholds.')

Hence π_x at other rates of interest than 5 per cent. can be readily calculated from a Life Annuity, or an S_x Table.]

27.—In note at page 13 we have mentioned that the value of a Life Annuity due of £1 is $\dfrac{1}{d + p_x}$ where the Policy assured is supposed effected to extent of this value. It sometimes happens, however, that the seller has already a Policy for the whole or part of the amount required in his possession, say for P, taken out n years ago, at a premium of p_{x-n} per pound, which he is prepared to dispose of at the same time. In such case, the saleable value of the Life Interest is increased, since the necessary insurance will cost less a year through the premium on the whole, or part of it, being less. In fact, it is equivalent to his having for sale an additional annuity of

$$P\,(p_x - p_{x-n}),$$

which gives to the price an additional value of

$$\frac{P\,(p_x - p_{x-n})}{p_x + d},$$

which is in fact the Value of the Policy, calculated by Office Premiums. (See "Valuation of Policies," in the Appendix on the Investigation of the affairs of a Company, etc.)

Of Contingent Reversionary Life Interests.

28.—In the preceding Articles relating to the sale of a Reversion, it has been supposed to be a sum of money; if, however, it be a *Reversionary Life Interest*, I, of a Life, x, after death of another, y, should x survive, then the usual theoretical value would be

$$I\,(a_x - a_{x.y}),$$

supposing x to receive the *whole year's annuity I at the end of the year in which y dies. This value, putting a_x (Greek letter *alpha*) for $1 + a_x$, is

$$= I\,(a_x - a_{x.y}),$$

which may be put under the form of

$$= I \cdot \frac{S_{x.y} - S_x}{d}$$

or

$$= \frac{I}{d + \pi_x}\left\{ S_{x.y} - \pi_x.\,a_{x.y} \right\}.$$

---

* By the Apportionment Act (4 & 5 Wm. IV. c. 22), this would not be the case in practice, as that statute directs that a life in possession shall receive a proportion of " any rent, annuity, pension, dividend, modus, composition, or other payment," for the period elapsed between the last day of payment and the death, —*unless there be (by sect. 3) an express stipulation to the contrary.*

29.—If for π_x the Office Premium, p_x, be substituted, and $S_{x.y}$, d, and $a_{x.y}$ be taken at a high rate of interest, varying from 6 to 8 per cent., then the result would be the net Cash Value, R_i, of the reversionary interest, after the deduction made for necessary assurance on the life x for the whole duration thereof, or

$$R_i = \frac{I}{d + p_x} \left\{ S_{x.y} - p_x \cdot a_{x.y} \right\} \quad . \quad . \quad . \quad (1)$$

$a_{x.y}$ is taken at 3 or 4 per cent. if a single premium is to be paid for the assurance.

30.—This result may be deduced by direct reasoning, and its propriety shown, thus :—

Let P = *amount of Assurance Policy on life x, required to cover R_i, with accumulations of interest thereon till the end of the year in which occurs the death of the first of the two lives x and y, and also to cover accumulation of annual premium, Pp_x, with interest, until same event.*

Now $\dfrac{R_i}{S_{x.y}}$ = *accumulated amount of* R_i,

and $\quad \dfrac{P \cdot p_x}{\pi_{x.y}}$ = *accumulated amount of* Pp_x,

$\therefore \qquad P = \dfrac{R_i}{S_{x.y}} + \dfrac{P \cdot p_x}{\pi_{x.y}}$. $\quad . \quad . \quad . \quad . \quad . \quad (2)$

31.—Now since accumulations are only taken to the end of the year of the first death, and the Policy P is not receivable till x is dead, I must, in case of x surviving y, be sufficient to cover Pd and Pp_x the annual Office Premium still payable till x dies ; and, by hypothesis, if x survive, he comes into receipt of one I at the end of the year in which y dies.

$\therefore \quad I = Pd + Pp_x$

$\therefore \quad P = \dfrac{I}{d + p_x}$ $\qquad . \quad . \quad . \quad . \quad . \quad . \quad (3)$

and $\quad R_i = \dfrac{I}{d + p_x} \left\{ S_{x.y} - p_x \cdot a_{x.y} \right\}$ $\quad$ from (2)

as before.

32.—If a present Life Annuity is to be given to x, payable while x and y are jointly alive, in exchange for his contingent Reversionary Interest, then, as S_x and $a_{x.y}$ may be at the same rate of interest,

Present Annuity $= \dfrac{I}{d + p_x} (\pi_{x.y} - p_x)$ $\quad . \quad . \quad . \quad (4)$

APPENDIX

ON

INVESTIGATIONS

INTO THE

AFFAIRS OF A COMPANY

FOR

AMALGAMATION OR BONUS DIVISIONS.

———◆———

SECTION I.

As to Valuations of the Policies and Liabilities of Assurance Societies.

Art. 1.—*Let* $V_{x,n} =$ *Value of a Policy of Assurance of £1 at age x, after n years; supposing net annual premium* (π_x) *only to be payable.*

$V'_{x,n} =$ *Value of the same Policy, where Office Premium* (p_x) *is considered.*

Then, at the time when the Policy is effected, if no premiums had to be paid, V_x would coincide with S_x,* but as there is a contract to pay a premium, p_x,

$$V'_x = S_x - p_x \cdot a_x.$$

2.—If there were no margin or loading on the premiums, that is, if

$$p_x = \pi_x$$

then at starting $\quad V_x = 0$

since $\quad\quad\quad S_x = \pi_x \cdot a_x.$

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* See definition of S_x at note to page 5.

3.—As in practice, however, the Office charges a higher rate than π_x, viz. $p_x = (\mu + 1)\, \pi_x$

then $V'_x = -\mu \cdot \pi_x \cdot a_x$.   .   .   . (1)

that is to say, at the beginning the contract is in favour of the Society to the extent of

$$\mu \cdot \pi_x \cdot a_x \text{ or } \mu \cdot S_x \quad . \quad . \quad . \quad . \quad (2)$$

which is the present value of the margin (or loading for Office expenses and contingencies, and for divisions of profit) added on to the net premium π_x.

It may be mentioned, however, that μ is rarely a constant at all ages.

4.—When n years have elapsed, supposing premium just due,

$$V'_{x,n} = \pm \left\{ S_{x+n} - p_x \cdot a_{x+n} \right\} \quad . \quad . \quad . \quad (3)$$

(which is the form ordinarily used in Valuations), or

$$= \pm \left(\pi_{x+n} - p_x \right) a_{x+n} \quad . \quad . \quad . \quad (4)$$

5.—Until age $(x + k)$, where

$$\pi_{x+k} = p_x$$

the present value of the contract is still in favour of the Society, or $V'_{x,n}$ is negative.

6.—After n exceeds k, $V'_{x,n}$ becomes positive, and the Policy has a saleable or *Surrender Value* in favour of the Assurer, and that is the sense in which the Value of a Policy is generally understood. It is the excess of the accumulation of the premiums paid, with interest, over the proportion of Losses *estimated* (according to the Law of Mortality assumed) *as likely* to have been experienced each year. Thus, young policies have no surrender value, if the terms of the contract be adhered to.

7.—If, however, it be understood that, from the commencement, a surrender value is to be allowed at any time, the Assurer would have to be credited with this fact, and the formula (4), for surrender purposes, would be changed into

$$(p_{x+n} - p_x)\, a_{x+n} \cdot \quad . \quad . \quad . \quad . \quad . \quad (5)$$

which is always positive, and not an exaggerated surrender value of a Policy, as it is the present value of the difference between the increased premium the Assurer would have to pay at his present age for his policy, and that which he is paying.

8.—A deduction is sometimes made in fixing prices for Surrender, to cover the circumstance that, as a general rule, when lives withdraw from a Society, it is probable they are good, and that the Society, having some invalid ones left, is injured by the self-selection of the Assured.

9.—We give a new form of great simplicity for the valuation of the Policies at an investigation of the affairs of a Society,

$$V'_{x,n} = \pm \{1 - (d + p_x) a_{x+n}\} \quad . \quad . \quad . \quad (6)$$

requiring only a Table of Life Annuities.

This equation shows that on a Policy of £1, all that the Society gains, by the death of the Life not occurring, is an annuity of $(d+p_x)$.

Hence, if the Assurer were to apply a sum of money, such as a Bonus, to make his Policy payable to himself at a future age or in case of previous death, it must be sufficient to provide for the Society a deferred annuity of $(d + p_x)$. (See Art. 39.)

10.—Again,

$$V'_{x,n} = \pm \{1 - (1 + p_x \cdot a_x) \cdot (1 - S_{x+n})\} \quad . \quad . \quad (7)$$

where $\qquad a_x = \dfrac{1}{d}$

$\qquad\qquad$ = value of a perpetuity due of £1.

This form requires only a Table of Reversions (see page 14).

11.—Again,

$$V'_{x,n} = \pm \frac{\pi_{x+n} - p_x}{\pi_{x+n} + d} \quad . \quad . \quad . \quad . \quad . \quad (8)$$

depending only on a Table of π_x, or Net Premiums, of which we have given the reciprocals in the Preliminary Remarks.

12.—Where the Valuation of Policies is by net premium, π, instead of Office, p, then

$$V_{x,n} = 1 - \frac{a_{x+n}}{a_x} \quad . \quad . \quad . \quad . \quad . \quad . \quad (9)$$

(depending only on a Table of Annuities Due), or

$$= \frac{S_{x+n} - S_x}{1 - S_x} \quad . \quad . \quad . \quad . \quad . \quad (10)$$

in terms of Reversions, S.

13.—The form in equation (8) can be reasoned out thus :—Since,

at end of n years, the Assured has paid up $V_{x,n}$, the interest on this, added to the premium he pays, or

$$V_{x,n} \cdot d + \pi_x$$

must be sufficient to insure the remainder of the Policy $(1 - V_{x,n})$, at present age, or

$$V_{x,n} \cdot d + \pi_x = \pi_{x+n} (1 - V_{x,n}) \quad . \qquad . \qquad . \quad (11)$$

whence
$$V_{x,n} = \frac{\pi_{x+n} - \pi_x}{\pi_{x+n} + d}$$

as before.

14.—Hence, if the policy be re-valued at end of a further period of k years, we must have

$$V_{x,\overline{x+k}} = V_{x,n} + V_{\overline{x+n}} \cdot {}_k (1 - V_{x,n}) \quad . \qquad . \quad (11 \; bis)$$

15.—If $V_{x,n}$ be compared with π_x, or the question be, what *number*, $H_{x,n}$, of past *net* premiums upon a sum assured at age x, the Society should have in hand at a Valuation, we have

$$H_{x,n} = \frac{V_{x,n}}{\pi_x}$$
$$= \frac{S_{x+n} - S_x}{S_x} \cdot a_\infty \qquad . \qquad . \qquad . \qquad . \quad (12)$$

a_∞ being the value of a perpetuity *due*.

$H_{x,n}$ is therefore the *actual amount* for every £1 a year of net premium paid, for which the Assurer is creditor on the Society. See Table in Preliminary Remarks.

16.—In terms of annuities due

$$H_{x,n} = \frac{a_x - a_{x+n}}{1 - d \cdot a_x} \qquad . \qquad . \qquad . \qquad . \quad (13)$$

17.—In like manner, at the next Valuation, k years after, there would be $H_{x,\overline{x+k}}$ in hand, and a comparison with the previous Valuation would show that in the interval there should be an increase of the net premiums in hand

$$H_{x,\overline{x+k}} - H_{x,n} = \frac{S_{x+n+k} - S_{x+n}}{S_x} \cdot a_\infty \quad . \qquad . \quad (14)$$

This increase *includes* allowance for interest on the last $H_{x,n}$, and on the net premiums paid in the interval, deduction being made for the mortality experienced.

18.—If a Policy has been valued on the principle of *net* pre-

miums, or Tables of such values are at hand, and if μ be known, then $V'_{x,n}$ can be deduced from $V_{x,n}$ as follows:

$$V'_{x,n} = V_{x,n} - \mu \left(S_{x+n} - V_{x,n} \right) \quad . \qquad . \qquad . \quad (15)$$

19.—Simple formulæ for *net* premiums may be * devised in functions of D and N symbols:

$$V_{x,n} = 1 - \frac{N_{x+n}}{D_{x+n}} \cdot \frac{D_x}{N_x} . \qquad . \qquad . \qquad . \qquad . \quad (16)$$

20.—The preceding formulæ can be adapted for the case of Joint Life and Survivorship Policies by introducing the corresponding Values of S and a.

21.—For Joint Life Policies payable at the death of the first,

$$V'_{\overline{x \cdot y}, n} = 1 - (d + p_{x.y}) \cdot a_{\overline{x+n} \, , \, \overline{y+n}} \quad . \qquad . \quad (17)$$

which is probably the most convenient form, as requiring only a table of *Joint Life Annuities*.

22.—If the Policy be one of Survivorship Assurance, payable if a Life, x, die before another, y,

$$V'_{\underset{(1)}{\overline{x \cdot y}}, n} = (\pi_{\underset{(1)}{\overline{x+n} \, , \, \overline{y+n}}} - p_{\underset{(1)}{x,y}}) \; a_{\overline{x+n} \, , \, \overline{y+n}} \qquad . \quad (18)$$

23.—If tables of $\pi_{\underset{(1)}{x,y}}$ be not at hand, $V'_{\underset{(1)}{\overline{x \cdot y}}, n}$ can be deduced from the Office rates for survivorship assurance $p_{\underset{(1)}{x \cdot y}}$, if its loading or margin be known or ascertainable, for

$$V'_{\underset{(1)}{\overline{x \cdot y}}, n} = \left(\frac{p_{\underset{(1)}{\overline{x+n} \, , \, \overline{y+n}}}}{\mu + 1} - p_{\underset{(1)}{x \cdot y}} \right) a_{\overline{x+n} \, , \, \overline{y+n}} \qquad . \quad (19)$$

which only requires a Joint Life Annuity Table.

The discussion of the formulæ for other kinds of assurance or endowment would be too long for our space, but the preceding remarks will suggest the necessary forms to be adopted.

---

* $[N_x$ is the sum of money which will buy at birth, for each of the survivors l_x of l_o persons then born, a deferred annuity of £1 a year, beginning at age x. This N_x corresponds to David Jones's N_{x-1}.

M_x is the sum necessary to provide an assurance of £1 to each person dying after age x.

D_x is the sum at birth necessary to provide an endowment of £1 to the survivors at age x, or it will provide annuities *due* of d (interest) and assurance at death of £1.

∴ $$D_x = M_x + d \cdot N_x.]$$

24.—*The whole or half of a year's Premium would have to be added in all the preceding formulæ, if the premium had just been paid, or were not due for six months.*

25.—If, on Surrender of a Policy, its full value be allowed in the form of a *free reversionary policy*, $F'_{x,n}$, then

$$F'_{x,n} = 1 - \frac{p_x}{\pi_{x+n}} \qquad . \qquad . \qquad . \qquad . \qquad (20)$$

from Article 4.

26.—$F'_{x,n}$ is important, as it measures that portion of a Policy which an Assurer who has survived n years since he effected it, has already paid up or realized, after deducting an allowance for the risk incurred by the Office in the same period.

27.—Each year's payment adds to the amount so paid up on the Policy, until the commencement of the last year of life, when the corresponding value of π_{x+n} would be $\frac{1}{1+i}$, or r; and, before he pays the last premium,

$$F'_x = 1 - p_x(1+i) \qquad . \qquad . \qquad . \qquad . \qquad \text{(from 20)}$$

When it is paid, F'_x becomes £1.

28.—The progress of a Free Policy in k years, in passing from age $x+n$ to $x+n+k$, after enjoyment of assurance for those years is

$$F'_{x,\overline{n+k}} - F'_{x,n} = p_x \left\{ \frac{1}{\pi_{x+n}} - \frac{1}{\pi_{x+n+k}} \right\} . \quad (21)$$

29.—These formulæ suggest how much a Policy should be reduced, if an Assurer desire to omit *altogether* the payment, say, of his $\overline{n+1}^{\text{th}}$ premium, and the risk of the Office be *suspended* for that year. Let $S_{x+n\overline{1|}}$ be the premium for an insurance of £1 for one year at age $x+n$. Then the Reduction in Policy should be

$$\frac{p_x - S_{x+n\overline{1|}}}{\frac{l_{x+n+1}}{l_{x+n}} \cdot r \cdot S_{x+n+1}} = \frac{p_x - S_{x+n\overline{1|}}}{\pi_{x+n} - S_{x+n\overline{1|}}} \left(1 - \frac{\pi_{x+n}}{\pi_{x+n+1}} \right)$$

$$= \frac{p_x - S_{x+n\overline{1|}}}{\pi_{x+n} - S_{x+n\overline{1|}}} \cdot (F'_{\overline{x+n}\,1}) \quad . \qquad . \qquad (22)$$

30.—If the omission take place at an age when π_{x+n} does not differ very much from p_x, the first fraction may be neglected, which would give the

Reduction $= F_{\overline{x+n}.1}$ (see Art. 25),

which is the amount of a *net* Free Policy corresponding to a new Policy taken out at age $(x + n)$ and dropped at end of one year. In fact, this value would be in favour of the Company as soon as π_{x+n} exceeds p_x and might with safety be used.

In the above,

$$F_{\overline{x+n}.1} = (1 - \frac{\pi_{x+n}}{\pi_{x+n+1}}) = (1 - \frac{p_{x+n}}{p_{x+n+1}}) . \quad . \quad . \quad (23)$$

if the margin on the premiums be constant; so that the value of $F_{\overline{x+n}.1}$ can be calculated from the Society's office tables.

31.—Even where the Policy is not suspended as in preceding Article, a practical method is nevertheless afforded by formula (22) to provide for cases where Assured is not able to pay a premium. The reduction might be permanent or temporary, or the original amount assured might be reinstated afterwards on payment of the omitted premium, with interest.

32.—Again, since $F_{x,n}$ is Free Policy Assurer gets by past payments for a Life Policy of £1, $1 - F_{x,n}$ is what he loses in amount assured by dropping his Policy.

If he take out a Policy for that amount at present age $\overline{x+n}$ and dropped it at age $\overline{x+n+k}$, then

$$(1 - F_{\overline{x+n},k}) . (1 - F_{x,n})$$

is what he would lose in amount assured by dropping his new Policy.

This is equal of course to what he would lose in amount assured by dropping a Life Policy of £1, effected at age x, at the end of a term of $(n + k)$ years, or

$$(1 - F_{x,n}) . (1 - F_{x+n.k}) = 1 - F_{x,\overline{n+k}} \quad . \quad . \quad . \quad (24)$$

33.—This example shows

$$F_{x,\overline{n+1}} = F_{x,n} + F_{x+n.1} - F_{\overline{x+n}.1} . F_{x,n}$$

or the progress of a Free Policy in passing from age $(x + n)$ to $(x + n + 1)$. The same relation holds of $F'_{x,n}$.

34.—*In one or two offices that have been recently established, a privilege is held forth, by way of attraction to the public, that any*

D

Assurer, desirous to discontinue his policy, will be allowed a free Reversionary Policy equal to the amount of the Premiums he has paid.
This is unsafe for the Office, until

$$F'_{x,n} = \text{ or } > n \cdot p_x$$

or

$$1 - \frac{p_x}{\pi_{x+n}} = \text{ or } > n \cdot p_x$$

or

$$p_x^{-1} - \pi_{x+n}^{-1} = \text{ or } > n$$

or until the amount, that was assured for £1 a year of the original office premium, exceeds by £n the number of pounds that £1 a year of net premium would assure at the present age.

When the margin of the Office premium p, over the net π, is known, such that

$$p = (\mu + 1)\,\pi$$

the safety of the privilege can be tested, on a policy of n years' standing, by seeing whether

$$\frac{(\mu + 1)}{p_{x+n}} - \frac{1}{p_x} = \text{ or } < n$$

(*See Table of Reciprocals of π_x given in the Preliminary Remarks.*)

Section II.

As to Divisions of Profit and Allotments of Bonus.

In the Preliminary Remarks, we have briefly pointed out the proper mode of measuring the *Liabilities and Assets of an Assurance Company*, and we will now consider the Allotment of Bonuses.

As to Allotment of Bonus.

35.—Actuaries are not agreed as to the proper principle for apportioning among the Policies the Profit declared in the Balance Sheet as available for division ; and various methods are practised, which, although perhaps admitted as objectionable, are continued at subsequent divisions, on account of the almost insuperable difficulty of making any alteration without disturbing the vested rights of the Assurers, many of whom in such Societies anticipate in future Bonuses a compensation for any error in the principles of allotment in the past.

1. At the epoch of a *First Division*, one mode of allotment

adopted is to form a Unit, equal to the sum of the net values, $V_{r,n}$ of the Policies. For subsequent Divisions the Unit being made equal to the progress of the value of the Policy in the period ; that is to say, if $n + k$ be the number of years the Policy has been in force, of which k is the number elapsed since the last Division, the Unit would be

$$V_{x,n+k} - V_{x,n}$$

in which the *Amount of the Policy* is taken as including the Bonus declared at previous Divisions.

This plan has the recommendation of crediting the Assurer with the whole amount of the accumulation of the premiums he has paid, with interest, deducting the proportion to defray the losses by death, and the margin for expenses and profits.

Those who advocate this method, make their valuations by net premiums, and argue that the principle adopted in dividing profits should not be different from that which would be fair if the Office were going to wind up or pay off its members.

The argument is that, as the office margin on the net premiums is contributed for expenses and contingencies, any unabsorbed portion of it goes to make profits, and as $V_{x,n}$ is all that the Policy-holder is actually creditor on the Society in respect of his past payments, the surplus should be divided in proportion to $V_{x,n}$.

II. Another plan, which is advertised in the Prospectus of a Scotch Office, is thus stated :—

" *The amount of Premiums received under each Policy, with accumulated interest to the time of Valuation, requires to be ascertained, and the difference between these and the values of the corresponding Policies constitutes, of course, the profit arising from each insurance.*

" *Then the total available Profit being divided in proportion to these various tabular profits or differences from Policies, the quotients give the share of present profit falling to be allotted to each.*"

This process is equivalent to taking as a Unit

$$p_x \cdot A_n - V_{x,n}$$

where A_n = amount by the end of n years of an Annuity due of £1.

In this it is overlooked that no $p_x A_n$ can exist in the Society's hands on any Policy, as each year a portion of the p's, paid by the members who survive, has been used to pay the Claims of those who have died.

Indeed, $V_{x,n}$ itself would be exactly equal to $\pi_x \cdot A_n$, were it not for the annual losses on the policies ; and this method of allotting

Bonus in proportion to the difference is, in fact, to proportion it to the Losses of the Society.

III. Another plan, adopted by many of the leading Offices in England and Scotland, is, *to allot the Surplus funds among the policyholders in the form of a Reversionary Bonus, at an equal rate per cent. per annum on the sums assured*, according to the whole *duration* of the assurances at the time of the allotment, without reference to the ages of the parties.

But the actual present values of such Reversionary Bonuses (which are payable only when death occurs) vary in reality with the ages of the assured, and are proportioned to the values of S for each life at the time of the valuation, *i.e.* to the present value of a Reversion of £1 at their respective ages. Thus an equal Reversionary Bonus of £2 per cent. per annum on policies of 5 years' standing, or £10 in all, is, at 3 per cent. discount, only worth in present money £4 at age 30, whereas it is equivalent to £6. 13s. if the present age be 60.

If G = whole Profit available for Division, the allotment will be correct under this plan if made in proportion to the present values of the risks, so as to give per £1 assured an equal Unit of Reversionary Bonus, b, for every year of standing. The share, B, of each policy, P, would be worth in present value

$$B = n \cdot b \cdot P \cdot S_{x+n}$$

where

$$b = \frac{G}{\Sigma(n \cdot P \cdot \overline{S_{x+n}})} \qquad . \qquad . \qquad . \quad (1)$$

IV. Another method in use is to allot the surplus profits on the plan of III., but in *proportion to the number, only, of years' duration* of each Policy *since the last Division*, and to the amount assured, including the previous bonuses.

V. A fifth method of allotment is in *proportion to the amount paid in premiums*, without interest, since the commencement of the Policy; treating each premium, p, or the margin of percentage thereon, as having given rise to the profits.

This plan has the advantage of simplicity of calculation, and consists in apportioning the profits according to the fructification which each premium paid by the Assured has experienced. Thus, a Policy, upon which ten premiums have been paid, would be considered as entitled to ten Units of Bonus on the first year's premium, nine on the second, and so on, down to one on the last, or, in other

words, to fifty-five Units on the Policy. The present value of the
share would be

$$B = \frac{n\,(n+1)}{2}\,p \cdot b$$

where

$$b = \frac{G}{\Sigma\left(n \cdot \frac{n+1}{2} \cdot p\right)} \qquad . \qquad . \qquad . \quad (2)$$

This is equivalent to an application of the Bonus in the nature of
simple interest on the premiums, and does not seem objectionable on
the score of unfairness.

VI. Where the valuation is by Office premiums, and $V_{x,n}$ has not
been calculated, another mode is to adopt as a Unit the accumu-
lated amount of the premiums with interest, without deductions for
losses; *i.e.*, $p_x \cdot A_n$ at first division, and $p_x\,(A_{\overline{n+k}} - A_n)$ at sub-
sequent divisions.

As to the Application of the Bonus.

36.—The share of each Policy in the divisible profits, G, of a
Society at the time of a Valuation represents an *immediate* Bonus, B,
although, if the assured elect to take this Bonus in cash, a deduction
is sometimes made to compensate the Society for the perhaps unde-
sirable withdrawal of the amount from its funds.

The immediate Bonus, B, is convertible, by dividing by S_{x_1} (if the
age at the time of the allotment be x_1) into an equivalent fixed *Re-
versionary Bonus*, payable at death, or, dividing by a_{x_1} or $a_{x_1 \overline{n}|}$, it is
applicable to a fixed annual reduction in the premium, either per-
manently for the whole of life, or until the next epoch for Division
of Profits.

If B be converted, as suggested in the Preliminary Remarks, into
an *increasing* Reversionary Bonus or an increasing annual Reduction
of premiums,—that is to say, one that is greater for each year the
assured lives after the date of the division,—then B would have to be
divided by* S'_{x_1} in the one case, and by a'_{x_1} in the other, so that the

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* [S'_x being single premium for an increasing assurance which is £1 if death
occur in the first year, £2 if in second, or £n if in nth year,

$$\therefore \quad S'_x = \frac{\Sigma\,M_x}{D_x};$$

and if π'_x be corresponding annual premium, then

$$\pi'_x = \frac{\Sigma\,M_x}{N_x}$$

The uniform payment of π'_t annually is equivalent to an increasing one of

rate of increasing Reversionary Bonus, b, would be $= \dfrac{B}{S'_x}$, and if the assured die in the nth year after allotment, his representatives would receive $(n \cdot b)$ in return for this share in profits, B. In like manner, the rate of increasing reduction of premium,

$$\rho = \frac{B}{a'_{x_1}} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (3)$$

or the reduction in the nth payment after the allotment in return for this particular share of the profits, B, would be $n\,\rho$.

37.—If repeated allotments be applied in Increasing reduction of the premium, the total extinction of the payment would ensue at an earlier date than in the case of an Invariable annual reduction.

Now the Assurer can be permitted to select either—

1°. That the reductions should tend to the extinction of the annual payment at a given age; or,

2°, be left to ascend as the Assurer continues to live, in which case he may live to cease to pay any premium himself, and enter upon the receipt of an increasing annuity.

As regards the first, if n be the number of years' interval (usually five or seven) at which the allotments are made, and $(x_1 + gn)$ be the given age at which the extinction is desired to take place, then the amount of each successive reduction in return for the successive Bonuses B_1, B_2 .... allotted, will ascend up to the gnth year, and then remain constant; so that if B_1 be the Bonus, ρ' the corresponding reduction,

$$B_1 = \rho' \left\{ a'_{x_1 \overline{g'|}} + gn \cdot \frac{l_{x_1 + gn}}{l_x} \cdot r^{gn}\, a_{x_1 + gn} \right\} \qquad . \qquad . \qquad . \qquad . \qquad (4)$$

In like manner

$$B_2 = \rho'' \left\{ a'_{x_1 + n \overline{(g-1).n|}} + (g-1) \cdot n \, \frac{l_{x_1 + g.n}}{l_{x_1 + n}} \cdot r^{(g-1)n} \cdot a_{x_1 + g.n} \right\} . \qquad . \qquad (5)$$

and it will depend upon the amount and number of B's as to whether his premium will be extinguished at age $(x_1 + g\,n)$ or not.

S_x, S_{x+1}, S_{x+2} .... each year, and S'_x is the value of such irregularly increasing Annuity S_x, S_{x+1}, S_{x+2} ....

If a'_x, the value of an increasing annuity *due*, be tabulated from its value $\dfrac{\Sigma\, N_x}{D_x}$, so that the annuity be £1 at starting, £2 the second year .... £n the nth year, then

$$S'_x = a_x - d \cdot a'_x \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (1)$$

or, in another form, taking away the denominator D_x

$$\Sigma\, M_x = N_x - d\,\Sigma\, N_x . \qquad . \qquad . \qquad . \qquad . \qquad (2)]$$

38.—If a Bonus, B_1, be allowed at age x_1, and the Assured desire to apply it so that at some future unknown age, $x_1 + y$, the payment of his annual premiums, p_x, may cease, we have

$$B_1 = p_x \cdot \frac{N_{x_1 + y}}{D_{x_1}}$$

whence $\qquad N_{x_1 + y} = \frac{B_1 \cdot D_{x_1}}{p_x}$ $\qquad$. $\qquad$. $\qquad$. $\qquad$. $\qquad$. (6)

which gives y by comparing this result with a Table of N. Similarly, the next Bonus will bring the age y earlier.

39.—If the Bonus be applied to make not only the *payment of the premiums cease, but the amount assured itself become payable to the Assurer at age $x + z$ or in case of previous death, B must suffice to meet the deferred Annuity $(d + p_x)$, or the annual interest on the amount assured as well as the premium.

$$\therefore \qquad B_1 = (d + p_x)\frac{N_{x_1 + z_1}}{D_{x_1}}$$

whence $\qquad N_{x_1 + z_1} = \frac{B_1 D_{x_1}}{d + p_x}$ $\qquad$. $\qquad$. $\qquad$. $\qquad$. (7)

and z_1 can at once be determined by simple inspection of a Table of N (see Article 9).

40.—In like manner, a second Bonus, B_2, allotted at age x_2, would be applied to bring the result out at an earlier age, $x_2 + z_2$, than $x_1 + z_1$, and B_2 must be sufficient to buy a temporary deferred Annuity *due* of $d + p_x$, deferred till age $x_2 + z_2$, and lasting till age $(x_1 + z_1 - 1)$ inclusive.

$$\therefore \qquad B_2 = (d + p_x)\frac{N_{x_2 + z_2} - N_{x_1 + z_1}}{D_{x_2}}$$

in which z_2 is the only unknown quantity, since from (7)

$$B_2 = \frac{(d + p_x) N_{x_2 + z_2}}{D_{x_2}} - B_1 \cdot \frac{D_{x_1}}{D_{x_2}}$$

$$\therefore \qquad N_{x_2 + z_2} = \frac{B_2 \cdot D_{x_2} + B_1 \cdot D_{x_1}}{d + p^x} \quad . \qquad . \qquad . \qquad . \quad (8)$$

whence z_2.

The reader will notice that $B_1 \cdot \dfrac{D_{x_1}}{D_{x_2}}$ is the amount of the previous Bonus, improved to the next division, allowing for the probability of the life surviving till that time.

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* [*The Problem in this article has been investigated in two Papers, published in the Sixth Volume of the 'Assurance Magazine' (pp. 290 and 314); but the writer has used for his purpose an unnecessarily lengthy method.*]

41.—Similarly, the third Bonus, B_3, allotted at age x_3, would bring out the age of realization, $x_3 + z_3$, of the policy, from

$$N_{x_3 + z_3} = \frac{B_3 \cdot D_{x_3} + B_2 \cdot D_{x_2} + B_1 D_{x_1}}{d + p_x} \qquad . \qquad . \qquad (9)$$

and so for successive Bonuses. It is to be remarked that these equations are independent of the previous z's.

42.—If in previous formulæ the Bonuses be assumed of equal amount, B, and annual, commencing at age x of Assurance, and continuing up to the year before the age at which the Policy is receivable, we have

$$N_{x + z} = B \cdot \frac{D_x + D_{x + 1} + \ldots + D_{x + z - 1}}{d + p_x}$$

$$= \frac{B}{d + p_x} (N_x - N_{x + z})$$

$$= \frac{B \cdot N_x}{B + (d + p_x)} \qquad . \qquad . \qquad . \qquad . \qquad . \qquad (10)$$

43.—By putting π_x for p_x in the preceding equation, we have the age, $x + z$, at which an Assurer can make his Policy payable to himself if he live or in case of previous death, provided he pay in addition to the ordinary net premium, π_x, any given annual margin, B.

44.—Conversely, if $x + z$ be a given age, (10) gives the extent of the margin, B, over π_x, to buy an *Endowment Assurance*, or

$$B = \frac{N_{x + z} (d + \pi_x)}{N_x - N_{x + z}} . \qquad . \qquad . \qquad . \qquad . \qquad (11)$$

45.—This last equation agrees with ordinary formulæ for an Endowment Assurance, for the total annual payment the Assurer makes is

$$(B + \pi_x) = \frac{N_{x + z}}{N_x - N_{x + z}} (d + \pi_x) + \pi_x$$

$$= \frac{N_{x + z} \cdot d + N_x \cdot \pi_x}{N_x - N_{x + z}}$$

$$= \frac{N_{x + z} \cdot d + M_x}{N_x - N_{x + z}} \qquad . \qquad . \qquad . \qquad . \qquad (12)$$

or, if preferred, $\qquad = \dfrac{M_x - M_{x + z} + D_{x + z}}{N_x - N_{x + z}} \qquad . \qquad . \qquad . \qquad (13)$

See note to p. 23.

The reader will observe that the M portion of the fraction represents the Death part of the Premium and the D the Endowment part.

SECTION III.

As to Guaranteed Bonuses.

46.—If the plan, adopted by an Assurance Society, be to charge in addition to p_x (the Office Premium for simple assurance *without* profits), such a further margin over the net mathematical rate π_x, as would enable it to *guarantee* a certain Reversionary Bonus payable at death :—Then the proper addition to p_x would be found as follows,—Supposing all expenses and other contingencies of the Society to be provided for by the margin already in p_x over π_x, and by a higher rate of interest being realized than is allowed in the calculation ; also, by the lapsing of policies, etc. :—

I. Let the guaranteed Bonus be t per £ of the sum assured, for each year of standing of Policy, so that the Assured shall receive $1 + nt$ at death if it occur in the nth year :—then if $\chi_x =$ annual premium for an assurance of £1 and such an increasing Bonus, a *portion $= t \cdot \pi'_x$ is paid as a premium to assure $n \cdot t$ if death occur in nth year, and the remainder

$$\chi_x - t \cdot \pi_x' = p_x$$
$$\therefore \qquad \chi_x = p_x + t \cdot \pi'_x . \qquad . \qquad . \qquad (1)$$

Similarly $\qquad$ single $\chi_x = \mu + 1 \cdot S_x + t \cdot S'_x , \qquad . \qquad (2)$

if $\qquad\qquad\qquad p_x = (\mu + 1) \, \pi_x$

Example : If $t = \cdot 02$, or the Bonus be 2 per cent. per annum of the sum assured (an amount not unfrequently allotted), then

$$\chi_x = p_x + \cdot 02 \cdot \pi'_x$$
or $$= \frac{(\mu + 1) \, M_x + \cdot 02 \, \Sigma \, M_x}{N_x}$$

II. Let the guaranteed *Reversionary* Bonus be a return of t per pound of all the annual premiums, ϕ_x, paid after n years (n being equal to the time in which the Assured will have paid in £1 in premiums). The Bonus will thus be $t \cdot \phi_x$ if death occur in the $\overline{n + 1}$th year ; $2 \, t \cdot \phi_x$ if in the $\overline{n + 2}$th year, etc.

Now the margin over p_x, or $(\phi_x - p_x)$, must $=$ the annual premium for a deferred assurance of $t \cdot \phi_x$ at the end of n years, $2 \cdot t \, \phi_x$ at end of $\overline{n + 1}$ years, etc. :—

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* See note to Art. 36, for a definition of π'_x.

$$\phi_x - p_t = t \cdot \phi_x \cdot \frac{\Sigma M_{x+n}}{N_x}$$

$$\therefore \qquad \phi_x = \frac{p_x}{1 - t \cdot \dfrac{\Sigma M_{x+n}}{N_x}} \qquad \qquad . \qquad . \qquad (3)$$

III. If the Bonus in II. commence at once, we must put $n = 0$, and ϕ_x becomes
$$= \frac{p_x}{1 - t \cdot \dfrac{\Sigma M_x}{N_x}} \qquad . \qquad . \qquad . \qquad (4)$$

or
$$= \frac{p_x}{1 - t \cdot \pi'_x} \qquad . \qquad . \qquad . \qquad (5)$$

IV. If the Bonus be a return of all the premiums, $t = 1$,
$$\phi_x = \frac{p_x}{1 - \pi'_x} \qquad . \qquad . \qquad . \qquad (6)$$

47.—If the Guaranteed Bonus be an *increasing Reduction* of Premium, commencing at the end of n years, various modes of calculation may be adopted, according to the extent of the Reduction intended. A simple case is that where the Assurer is to receive, as in Table 16, page 160, an annual increasing reduction equal to the interest at some given rate on all the premiums he has paid, and after the premium is extinguished, an increasing Deferred Annuity. Here we have only to assume that in calculating the premium, say p_x, the Assurer is credited with no interest, so that he may receive it annually during his life :—

$$\therefore \qquad p_x = \left(\frac{M_x}{N_x}\right)(i = 0)$$

$$= \frac{1}{e_x + \frac{1}{2}}$$

where e_x is the expectation of life at age x.

48.—Conversely, if the excess of the Bonus office rate over the *non-profit* rate be a known quantity, say $\mu_1 \cdot \pi_x$, then, in consideration of the Assurer at age x paying $\mu_1 \cdot \pi_x$ a year more than is necessary for a simple assurance of £1, an increasing yearly bonus, commencing at an agreed age, x_1, might be guaranteed, on the plan suggested in the Preliminary Remarks, which (in the case of the death occurring, say in the nth year after x_1) would be,—

$$= \frac{\mu_1 \, \pi_r}{\left(\dfrac{\Sigma \, M_{r_1}}{N_r} \right)} \qquad . \qquad . \qquad . \qquad . \qquad (7)$$

since $\dfrac{\Sigma \, M_{r_1}}{N_x}$ is the annual premium for an increasing assurance, effected at age x, but not to commence till age x_1. This result is

$$= \mu_1 \cdot \frac{M_r}{\Sigma \, M_{r_1}} \qquad . \qquad . \qquad . \qquad (8)$$

49.—If instead of the increasing rate of annual Bonus, as in the preceding Article, $\mu_1 \, \pi_r$ had been applied to obtain a fixed Bonus or increase to the Policy, it would have been μ_1 pounds.

Section IV.

As to Average Ages, and the Limit of Assurance Risk to be kept by a Society.

50.—The considerations of *Moral and Mathematical Expectation* given in a previous Appendix, show that *it is disadvantageous to an Assurance Society to grant Policies of the* same *amount to Assurers of* different *ages, or of* different *amounts where the ages are the* same.

I. *As to the average age of Policies.*—In valuing Policies, various arrangements are usually made for classifying them according to what are intended to be 'average' ages, so as to diminish the labour of calculation. The 'average age' of two or more lives is that which would give to the Society the same results, in respect to risk, average duration of live, and the general contingencies of existence, on one Policy for the whole amount assured, as attend the aggregate of the Policies on separate lives. Hence, by way of example, even in the extreme case of only two policies being considered, of different amounts, P_1, P_2, at ages, say 30 and 60, it would not be correct to say that they are equivalent to one of $P_1 + P_2$ at age 45, nor that the average age is 45, even when $P_1 = P_2$; for the Expectation of a Risk (whichever way it be considered, whether by present value, or with regard to ultimate payment at death, or in respect to the current risk each year) is not the same on a policy at the

mean age for the sum of the two amounts assured, as on the two
separate Policies. In other words, the *Average age* will not lie
midway between two ages, or be equal to the mean age.

51.—There is no method that can be applied practically which
would give an age *truly representing*, even in respect to *Mathema-
tical* expectation, an equivalent for the ages of the lives in the sepa-
rate Policies. When relative or *Moral* expectation in respect to
Policies is considered, the average age of policies on lives of the same
age, but for different amounts, is no longer that age :—for instance,
suppose three policies, for £100, £200, and £1000, on lives aged
30; the moral expectation attending such Policies is not equal to
that of one Policy for £1300 at the same age.

II. *As to Limit of Assurance Risk to be kept by a Society.*—This
leads on to the remark that, in order that the *Moral expectation* of
the current risks of a Society at the various ages may not be greatly
unequal while it is young, or when, from that or other causes, it has not
a sufficient number of lives of about the same ages to form an Average,
then the *Limit of Assurance kept* at each age should be diminished
as the age is greater. Thus if £3,000 be the amount of policy granted
on a life aged 30, not more than £1,677 should be granted on a life
aged 60, otherwise the Society would experience *Moral* disadvantage;
for it is obvious that although, from the Premiums being larger in Po-
licies on advanced ages, the value of the *Mathematical* expectation of
the total ultimate payments received by a Company from an assurance
on an old life may be equal to that from a corresponding assurance
on a younger and consequently longer enduring life, yet the *Moral*
expectations of the immediate risks for any current period can only
be rendered equal to each other, or nearly so, by a large average of
about the same age, or by some system of graduation of the amount
assured, so as to tally with the increase of immediate risk attending
the fact of the ages being older. There is no means, indeed, of
fixing the amounts, so that the proportion of the increase of the
Moral expectations of the risks attending the policies in the office as
they advance in age shall year by year remain the same. This, as
the Office gets older or obtains a larger business, is, however, un-
important, the object being to avoid Aberration and consequent loss
that may arise from want of an average number of lives of about
the same ages. In selecting a decreasing limit of assurance, various
ratios will present relative degrees of argument in their favour, but

the one we rather incline to is:—*That the relative amounts assured at various ages should be proportional to the corresponding values of* a_x, which represent the equivalent of the number of premiums the Society is likely to receive on each Policy: always supposing (as may, in general, safely be done) that the premiums themselves are properly calculated to correspond to the ages of the lives assured. This ratio would give a sufficiently accurate adjustment to equalize the *moral* expectation that the lives will last long enough to pay a sufficient *number* of premiums to prevent the Society from losing by them. Thus, as we have said before, if at age 30 the limit of the Society's assurance is fixed at £3,000, at 40 it should be only

$$\frac{3,000 \; a_{40}}{a_{30}} = \text{£}2,648$$

at age 60 it would be

$$\frac{3,000 \; a_{60}}{a_{30}} = \text{£}1,677$$

See the table at p. 7.

52.—Although we recommend this peculiar ratio, our readers can, by the aid of the method in the Appendix on Probabilities (Art. 13), deduce a series of values of the moral expectation, to be used as limits of Assurance at each age, which should correspond to the values of $(1 - p)$, or the chance of dying that each life has, in the period for which the equalization of the moral expectation is desired. For instance, if 5 years were the time, then, at age 30 $(1 - p)$ or the chance of death would be $\frac{153}{3066}$ or $\frac{5}{100}$ nearly, and at age 60 it would be $\frac{327}{1887}$ or $\frac{17}{100}$, and the *mathematical* expectation of the older policy becoming a claim on the Society is as 17 to 5 against the younger policy; but there would still be (according to Art. 14, Appendix on Probabilities) a *moral disadvantage* to the Society in granting these Policies of equal amount, where the risks for the period are so disproportioned, even if the premiums charged were according to these ratios.

To make the calculation with accuracy, it would of course be necessary to take the chance of the death for each of the years of the period, since the policies are payable within three months after death, whenever it may occur.

APPENDIX

THE TRUE LAW OF SICKNESS

IN

FRIENDLY SOCIETIES.

————◆————

1.—Let, as stated in Art. 101 p. 107, c be the constant minimum rate per annum, at all ages, of Sickness, defined as Inability to Labour, to which human beings are subject, on the average of a large number of lives, and which depends upon their Race, the Climate of their habitations, etc. ;

σ_x, the rate experienced on the average at age x ;

and
$$E_x = \sigma_x - c$$
or the quantity that σ_x exceeds c.

Then, we have found that the True Law of Inability to labour, through Sickness, consists in the relation that, for successive quinquennial periods,
$$E_x = E_{x-5} + E_{x-10} \qquad . \qquad . \qquad . \qquad . \qquad (1)$$
or, in another form,
$$\sigma_x = \sigma_{x-5} + \sigma_{x-10} - c \qquad . \qquad . \qquad . \qquad (2)$$

2.—If c be eliminated, we have
$$\sigma_x = 2\,\sigma_{x-5} - \sigma_{x-15}$$
or $\qquad \sigma_x - \sigma_{x-5} = \sigma_{x-5} - \sigma_{x-15} \qquad . \qquad . \qquad . \qquad . \qquad (3)$

that is to say, the difference between the rate of sickness, at an interval of 5 years, is equal to the previous difference at an interval of 10 years.

3.—From (1) we have by summation of the E's
$$E_{x+5n} = u_n \,.\, E_{x+5} + u_{n-1}\, E_x$$

in which the coefficients u_n are found by the relation

$$u_{n+1} = u_n + u_{n-1}$$

and are terms of the series,

$$1, 1, 2, 3, 5, 8, 13, 21, \text{etc.}$$

or, the probable rate of sickness $5n$ years hence may be estimated in terms of two past experiences at an interval of 5 years.

4.—The above can be made

$$E_{x+5n} = u_{n+1} E_x + u_n \cdot E_{x-5} . \qquad . \qquad . \quad (4)$$

5.—If $E_{x+5} = E_x$ at commencement, such as sickness at $25 =$ that at 20, nearly, then

$$E_{x+5n} = u_{n+2} E_x \qquad . \qquad . \qquad . \qquad . \quad (5)$$

6.—From (3) we can deduce

$$[\sigma_{x+1} + \sigma_{x+2} + \sigma_{x+3} + \sigma_{x+4} + \sigma_{x+5}] = [\sigma_x + \sigma_{x-1} + \sigma_{x-2} + \ldots \sigma_{x-9}] - 5e \ldots (6)$$

whence we see that, if we suppose a Society for its protection to take the unfavourable view that all now alive at age x will survive the coming quinquennial period, and expose the Society to loss from Sickness, the maximum amount, it is likely to pay per head on a large average of members, can be expressed in terms of the rates experienced in the last 10 years. The actual result, considering that deaths in the interval may occur, would be probably less.

In another form, putting E for $\sigma - e$ in equation (6),

$$\Sigma (E_{x+1} \text{ to } E_{x+5}) = \Sigma (E_{x-9} \text{ to } E_x) \qquad . \qquad . \quad (7)$$

7.—From two quinquennial experiences, E_x and E_{x+5}, the *average* rate of sickness during the next quinquennial period may be deduced with sufficient approximation by supposing it to be the mean between the rates at the beginning and end of the period :—that is to say, if $E_{x+12\frac{1}{2}}$ be the average sickness for the period between $x + 10$ and $x + 15$, it may be taken,

$$= \frac{E_{x+10} + E_{x+15}}{2}$$

then $\qquad\qquad E_{x+12\frac{1}{2}} = \frac{3}{2} E_{x+5} + E_x \qquad . \qquad . \qquad . \quad (8)$

APPENDIX ON FRIENDLY SOCIETIES.

THE NEW ACT.

AN ACT TO CONSOLIDATE AND AMEND THE LAW RELATING TO FRIENDLY SOCIETIES, 1855.

18 & 19, Vic. c. 63.

WHEREAS it would conduce to the improvement of the law relating to Friendly Societies if the several statutes relating thereto were consolidated, and certain additions and alterations were made therein: Be it therefore enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal, and Commons, in this present Parliament assembled, and by the authority of the same:

Acts or parts of Acts set forth in first schedule repealed.

I. That there shall be hereby repealed the several Acts or parts of Acts set forth in the first schedule hereto, save and except as to any Offences committed, or penalties or liabilities incurred, or bond or security given, or proceedings taken under the same, before the commencement of this Act.

Societies under former acts to continue.

II. Provided nevertheless, That, notwithstanding the repeal of the said several statutes, every Friendly Society now subsisting, which heretofore had been formed and established under the said Acts or any of them, shall still be deemed to be and shall continue to be a subsisting Society, as fully as if this Act had not been made, unless and until such Society shall be dissolved, or united with some other Society as hereinafter mentioned.

Their rules to continue in force, and enrolments to be sent to Registrar.

III. Provided also, that the Rules of every such subsisting society hitherto formed and established which have been hitherto confirmed, registered, or certified under the said Acts or any of them, shall be deemed valid and in force until the same shall be altered, or

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rescinded, as herein-after mentioned; and all transcripts of any of such rules, which are now filed with the Rolls of the Sessions of the Peace, of any County, Riding, or Division, City or Borough, Liberty or Place, shall be taken off the file and shall be transmitted, on or before the first day of November, one thousand eight hundred and fifty-five, to the Registrar under this Act, to be by him kept in such manner as shall be directed from time to time by one of her Majesty's Secretaries of State in that behalf.

All their contracts, and all Bonds, &c., to them, to continue in force.

IV. Provided also, That all contracts and engagements by or with any of the said societies now valid and in force, and all bonds and securities heretofore given by any trustee, treasurer, or other officer of any such society, shall continue and be valid and in force notwithstanding the repeal of the said Acts.

Their exemptions, Powers, and Privileges under this Act.

V. All such subsisting societies, whose rules have heretofore been confirmed, registered, or certified under the said Acts or any of them, shall, so long as they shall not hereafter effect an assurance to any member thereof, or other Person, of any sum exceeding two hundred pounds, or of any annuity exceeding thirty pounds per annum, enjoy all the exemptions and privileges by this Act conferred on societies to be established under the provisions of this Act, as fully as if they had been registered and certified under this Act as herein-after mentioned.

Registrars.

How and by whom appointed.

VI. For the purposes of this Act, there shall be three Registrars of Friendly Societies, one for England, one for Scotland, and one for Ireland, who shall hold their respective offices during the pleasure of the Commissioners for the Reduction of the National Debt; and upon the death, resignation, or removal of any one of them, the said Commissioners shall appoint another, being a barrister, in England or Ireland, and in Scotland an advocate, of not less than seven years standing, to the said office.

Their salaries.

VII. It shall be lawful for the Commissioners of her Majesty's Treasury to pay to the present Registrar for England a salary equal to that which has been paid to him

yearly in each of the three last years, not exceeding one thousand pounds per annum, and to pay to any Registrar hereafter to be appointed for England a salary not exceeding eight hundred pounds a year, and to pay to the Registrars for Scotland and Ireland respectively a salary such as the said Commissioners shall direct not exceeding one hundred and fifty pounds a year, every such salary to be paid by four equal quarterly payments; and any of the said Registrars who shall be appointed, or who shall die, resign, or be removed from his office, in the interval between two quarterly days of payment, shall be entitled to a proportionate part of his salary, and such salaries and proportionate parts of salaries shall be paid out of such monies as shall be provided by Parliament for that purpose.

Their Expenses of office, &c.

VIII. The said Commissioners of her Majesty's Treasury shall, out of such monies as may be provided by Parliament for the purpose, pay to the said Registrars respectively such sum as will defray the expenses allowed by the said Commissioners from time to time for office rent, salaries of clerks, stationery, computation of Tables, and for such other expenses as may be incurred by them respectively.

Societies how and for what purpose formed.

IX. It shall be lawful for any number of persons to form and establish a Friendly Society, under the provisions of this Act, for the purpose of raising by voluntary subscriptions of the members thereof, with or without the aid of donations, a fund for any of the following objects; (that is to say,)

For payments on death.

1. For insuring a sum of money to be paid on the birth of a member's child, or on the death of a member, or for the funeral Expenses of the wife or child of a member:

For relief in sickness, &c.

2. For the relief or maintenance of the members, their husbands, wives, children, brothers or sisters, nephews or nieces, in old age, sickness, or widowhood, or the endowment of members, or nominees of members at any age:

3. For any purpose which shall be authorized by one of her Majesty's Principal Secretaries of State, or in Scotland by the Lord Advocate, as a purpose to which the powers and facilities of this Act ought to be extended:

Provided, that no member shall subscribe or contract for an annuity exceeding thirty pounds per annum, or a sum payable on death, or on any other contingency, exceeding two hundred pounds:

And if such persons so intending to form and establish such society shall transmit rules for the government, guidance, and regulation of the same, to the Registrar aforesaid, and shall obtain his certificate that the same are in conformity with law as herein-after mentioned, then the said society shall be deemed to be fully formed and established from the date of the said certificate.

X In any society in which a sum of money may be insured payable on the death of a child under ten years of age, it shall not be lawful to pay any sum for the funeral expenses of such child, except upon production of a copy of the entry in the register of deaths, signed by the Registrar of the district in which the child shall have died ; and if such entry shall not state that the cause of death has been certified by a qualified medical practitioner, or by a coroner, a certificate signed by a qualified medical practitioner, stating the probable cause of death, shall be required, and it shall not be lawful in that case to pay any sum without such certificate ; and no trustee or officer of any society, upon an insurance of a sum payable for the funeral expenses of any such child, made after the passing of this Act, shall knowingly pay a sum which shall raise the whole amount receivable from one or more than one society for the funeral expenses of a child under the age of five years to a sum exceeding six pounds, or of a child between five and ten years to a sum exceeding ten pounds ; and any such trustee or officer who shall make any such payment otherwise than as aforesaid, or who shall pay any sum without endorsing the amount which he shall pay on the back or at the foot of the copy of entry signed by the said registrar, shall be liable to a penalty not exceeding five pounds for

every such offence, upon conviction thereof before two Justices of the County or Borough in which such death shall have taken place: the said registrar shall be entitled to receive, upon delivery of such copy of entry, for the purpose of receiving money from a Friendly Society, a fee of one shilling, and it shall not be lawful for him to deliver more than one such copy for such purpose, except by the order of a Justice of the Peace.

Benevolent Societies, in what case entitled to the benefits of this Act.

XI. And whereas many provident, benevolent, and charitable institutions and societies are formed and may be formed for the purpose of relieving the physical wants and necessities of persons in poor circumstances, or for improving the dwellings of the labouring classes, or for granting pensions, or for providing habitations for the members or other persons elected by them, and it is expedient to afford protection to the funds thereof: Be it enacted, That if two copies of the rules of any such institution or society, and from time to time the like copies of any alterations or amendments made in the same, signed by three members and the secretary thereof, shall be transmitted to the registrar aforesaid, such registrar shall, if he shall find that the same are not repugnant to law, give a certificate to that effect; and thereupon the following sections of this Act, that is to say, the seventeenth, eighteenth, nineteenth, twentieth, twenty-first, and twenty-second, fortieth, forty-first, forty-second, and forty-third, shall extend and be applicable to the said institution and society, as fully as if the same were a society established under this Act.

Statutes as to unlawful oaths not to extend to Societies under this or any repealed Acts.

XII. The act of the thirty-ninth of George the Third, Chapter Seventy-nine, and the Act of the fifty-seventh of George the Third, Chapter Nineteen, and also the Act of the fourteenth and fifteenth of her present Majesty, Chapter Forty-eight, relating to unlawful oaths in Ireland, shall not extend to any society established under this Act or any of the Acts hereby repealed, or to any meeting of the members or officers thereof, in which society or at which meeting no business whatever is transacted other than that which directly and immediately relates to the objects of the society as declared in the rules thereof, and set forth in the certified copy thereof:

Provided that the trustees or other officers of the society, when
required under the hands of two of her Majesty's Justices of the
Peace, shall give full information to such Justices of the nature,
objects, proceedings, and practices of such society, and in default
thereof the provisions of the Acts herein recited shall be in force
in respect of such society.

Societies,
how dis-
solved.

XIII. It shall be lawful for the members of any
society heretofore formed and established, or hereafter
to be formed and established at some meeting thereof to be specially
called in that behalf, to dissolve or determine the same by consent:
Provided that no society established under this or any Act, relat-
ing to Friendly Societies shall be dissolved or determined without
obtaining the votes of consent of five-sixths in value of the then
existing members thereof, including the honorary members, if any,
to be ascertained in manner herein-after mentioned, nor without
the consent of all persons, if any, then receiving or then entitled to
receive any relief, annuity, or other benefit from the funds thereof,
to be testified under their hands individually and respectively, unless
the claim of every such person be first duly satisfied, or adequate
provision made for satisfying such claim; and for the purpose of
ascertaining the votes of such five-sixths in value of the members
as aforesaid, every member shall be entitled to one vote, and an
additional vote for every five years that he may have been a mem-
ber, but no one member shall have more than five votes in the
whole; and the intended appropriation or division of the funds or
other property shall be fairly and distinctly stated in the agreement
for dissolution prior to such consent being given; and the agree-
ment for such dissolution, duly signed as aforesaid, accompanied
with a statutory declaration by one of the trustees, or by three
members and the secretary, taken before a Justice of the Peace,
that the provisions of this Act have been complied with, shall be
forthwith transmitted to the Registrar, to be by him deposited
with the rules of the society, and such agreement shall thereupon
be an effectual discharge at law and in equity to the trustees,
treasurers, and other officers of such society, and shall operate as a
release from all the members of the society to such trustees, trea-
surers, and other officers; and it shall not be lawful in any society

to direct a division or appropriation of any part of the stock
thereof, except for the purpose of carrying into effect the general
interests and objects declared in the rules as originally certified,
unless the claim of every member is first duly satisfied, or adequate
provision be made for satisfying such claims; and in case any
member of such society shall be dissatisfied with such provision, it
shall be lawful for him or her to apply to the Judge of the County
Court of the district within which the usual place of business of
the society is situated for relief or other order; and the said Judge
shall have the same powers to entertain such application, and to
make such order or direction in relation thereto, as he may think
the justice of the case may require, as hereinafter is enacted in
regard to the settlement of disputes; and in the event of the
dissolution or determination of any society, or the division or appro-
priation of the funds thereof, except in the way herein-before pro-
vided, any trustee or other officer or person aiding or abetting
therein shall, on conviction thereof by two Justices, be committed
to the common gaol or House of Correction, there to be kept to
hard labour for any term not exceeding three calendar months, as
to such justices shall seem meet.

Societies may
unite with
others, or
one society
may transfer
its engage-
ments to
another.

XIV. It shall be lawful for any two or more
societies established under this or any of the Acts
hereby repealed to unite and become incorporated in
one society, with or without any dissolution or divi-
sion of the funds of such societies or either of them;
or a society formed and established under this Act or any of the said
repealed Acts may be allowed to transfer its engagements to any
other Friendly Society, if any other such society shall undertake
to fulfil the engagements of such society, upon such terms as shall
be agreed upon by the major part of the trustees, and also of the
committee of management of both societies, or the majority of the
members of each of such societies at a general meeting convened
for the purpose.

Minors may
be elected as
members.

XV. A person under the age of twenty-one may be
elected or admitted as a member of any society estab-
lished under this Act or any of the Acts hereby repealed, the rules
of which do not prohibit such election, and may and he is hereby

empowered to execute all necessary instruments and to give all necessary acquittances: Provided always, that during his nonage he shall not be competent to hold any office of director, trustee, treasurer, or manager of such society.

Buildings for the Purpose may be purchased or leased.

XVI. It shall be lawful for the trustee or trustees for the time being of any Friendly Society formed and established under this Act or under any of the Acts hereby repealed, with the consent of a majority of the members thereof present at a special or general meeting of the society, to purchase, build, hire, or take upon lease any building for the purpose of holding such meetings, and to adapt and furnish the same, and to purchase or hold upon lease any land not exceeding one acre for the said purpose of erecting thereon a building for holding the meetings of the society, and such trustee or trustees shall thereupon hold the same in trust for the use of such society; and, with the like consent as aforesaid, such trustee or trustees may mortgage, sell, exchange, or let such building or any part thereof; and the receipt in writing of such trustee, or one of such trustees for the time being, shall be a legal discharge for the money arising from such mortgage, sale, exchange, or letting; and no mortgagee, purchaser, tenant, or assignee shall be bound to inquire into or ascertain or prove the consent aforesaid, to verify his title: Provided always, that any building purchased or appropriated for the purpose aforesaid already belonging to or in the possession of any Friendly Society heretofore formed and established under the said repealed Acts or any of them may be holden and dealt with as if it had been acquired under this Act; and the land or buildings which may be vested in the treasurer, trustee, or other officer thereof for the time being shall thereupon vest in the trustee or trustees for the time being of such society, for the same estate and interest as the said treasurer, trustee, or other officer may have therein, without any conveyance or assignment whatever: Provided nevertheless, that all money spent in purchasing, building, hiring, or taking upon lease any building for the purpose of holding such meetings, and in adapting and furnishing the same, be raised according to the rules of the society on such behalf inserted; and this section shall apply to any society registered under the Industrial and Provident

Society's Act, 1852, and to any building or land to be purchased, built, hired, or taken on lease for the purposes of the labour, trade, or handicraft of such society, in all respects as hereby enacted with regard to any building or land for the holding the meetings of any friendly society.

Trustees, how appointed.
XVII. Every friendly society established under this Act shall, at some meeting of its members, and by a resolution of the majority of the members then present, nominate and appoint one or more person or persons to be trustee or trustees for the said society, and the like in the case of any vacancy in the said office ; and a copy of the resolution so appointing such person or persons to the Office of trustee, and signed by such trustee or trustees and by the secretary of the said society, shall be sent to the registrar, to be by him deposited with the rules of the said society in his custody ; Provided always, that where no trustee shall have been appointed in any society established under any one of the Acts hereby repealed, the treasurer thereof, or other person who has custody of the monies of such society, shall be taken to be a trustee within the meaning of this Act.

Property of the Society vested in them.
XVIII. All real and personal estate whatsoever belonging to any such society established under this Act or any of the Acts hereby repealed shall be vested in such trustee or trustees for the time being, for the use and benefit of such society and the members thereof, and the real or personal estate of any branch of a society shall be vested in the trustees of such branch, and be under the control of such trustee or trustees, their respective executors or administrators, according to their respective claims and interest, and upon the death or removal of any such trustee or trustees the same shall vest in the succeeding trustee or trustees for the same estate and interest as the former trustee or trustees had therein, and subject to the same trusts, without any conveyance or assignment whatsoever, save and except in the case of Stocks and Securities in the Public Funds of Great Britain and Ireland, which shall be transferred into the name or names of such new trustee or trustees ; and in all actions or suits or indictments, or summary proceedings before magistrates, touching or concerning any such property, the same shall be stated to be

the property of the person or persons for the time being holding the said office of trustee, in his or their proper name or names, as trustees of such society, without any further description.

Actions, &c., by or against them.

XIX. The trustee or trustees of any such society are hereby authorized to bring or defend, or cause to be brought or defended, any action, suit, or prosecution in any Court of Law or Equity, touching or concerning the property, right, or claim to property of the society for which he or they are such trustee or trustees as aforesaid ; and such trustee or trustees shall and may, in all cases concerning the real or personal property of such society, sue and be sued, plead and be impleaded, in any Court of Law or Equity, in his or their proper name or names, as trustee or trustees of such society, without other description ; and no such action, suit, or prosecution shall be discontinued or shall abate by the death of such person, or his removal from the office of trustee, but the same shall and may be proceeded in by or against the succeeding trustee or trustees as if such death or removal had not taken place ; and such succeeding trustee or trustees shall pay or receive the like costs as if the action or suit or prosecution had been commenced in his or their name or names, for the benefit of or to be reimbursed from the funds of such society.

Limitation of his responsibility.

XX. Provided nevertheless, That no trustee or trustees of any such society shall be liable to make good any deficiency which may arise or happen in the funds of such society, but shall be liable only for the monies which shall be actually received by him on account of such society.

Treasurer to give security.

XXI. The treasurer of every such society, and every treasurer hereafter appointed in any society established under any of the repealed Acts, or any other officer who is required by the rules to give security, shall, before he take upon himself the execution of his office, become bound with one sufficient surety, in a bond according to the form set forth in the third schedule to this Act, or give the security of a Guarantee Society established in London, in such penal sum as the society or the committee of management shall direct and appoint, conditioned for his just and faithful execution of his said office of treasurer, and

for rendering a just and true account of all monies received or paid
by him on account of the said society at such time as the rules of
the said society shall direct and appoint, and at such times as he
shall be required so to do by the trustee or trustees of the said
society, or by a majority of the members present at any meeting of
such society; and every such bond shall be given to the trustee or
trustees of the said society for the time being; and if the same
shall at any time become forfeited, it shall be lawful for such trustee
or trustees for the time being to sue upon such bond for the use of
such society; and in Scotland such bond shall have the same force
and effect as a bond there in use duly attested and completed, and
containing a clause of registration for execution as well as for
preservation in the books of Council and Session and other Judges'
books competent, and shall be registered in such books accordingly,
with a view to diligence.

Treasurer to
account.
XXII. Every such treasurer or other officer, whether
appointed before or after the passing of this Act, at
such times as by the rules of such society he should render such
account as aforesaid, or upon being required so to do by the
trustee or trustees of such society, or by a majority of the said
committee of management, or by a majority of the members present
at a meeting of the said society as aforesaid, within seven days
after such requisition shall render to the trustee or trustees of the
society, or to the said committee of management, or to the members
of such society at a meeting of the society, a just and true account
of all monies received and paid by him since he last rendered the
like account, and of the balance then remaining in his hands, and
of all bonds or securities of such society, which account the said
trustee or trustees or committee of management shall cause to be
audited by some fit and proper person or persons by them to be
appointed; and such treasurer, if thereunto required, upon the
said account being audited, shall forthwith hand over to the said
trustee or trustees the balance which on such audit shall appear to
be due from him, and shall also, if required, hand over to such
trustee or trustees all securities and effects, books, papers, and
property of the said society in his hands or custody; and if he
fail to do so the trustee or trustees of the said society may sue

upon the bond aforesaid, or may sue such treasurer in the County Court of the district, or in any of the Superior Courts of Common Law, or in any other Court having jurisdiction, for the balance appearing to have been due from him upon the account last rendered by him, and for all the monies since received by him on account of the said society, and for the securities and effects, books, papers, and property in his hand or custody, leaving him to set off in such action the sums, if any, which he may have since paid on account of the said society; and in such action the said trustee or trustees shall be entitled to recover their full costs of suit, to be taxed as between attorney and client.

Property how recovered, if the officer die, or become bankrupt or insolvent.

XXIII. If any person already appointed or employed or hereafter to be appointed or employed to or in any office in any Friendly Society established under this Act or under any of the Acts hereby repealed, whether such appointment or employment was before or after the legal establishment of such society, and having in his hands or possession, by virtue of his office, any monies or property whatsoever of such society, or any deeds or securities belonging to such society, shall die, or become bankrupt or insolvent, or have any execution or attachment or other process issued against him or any part of his property, or shall have any action or diligence raised against his lands, goods, chattels, or effects, or property or other estate, heritable or moveable, or shall make any assignment, disposition, assignation, or other conveyance for the benefit of his creditors, the heirs, executors, administrators, or assignees of every such officer, and every other person having or claiming right to the property of such officer, and the Sheriff or other person executing such process, and the party using such action or diligence respectively, shall, upon demand in writing made by the treasurer or by the trustee or any two of the trustees of such society, or any person appointed at some meeting of the society to make such demand, deliver and pay over all such monies, property, deeds, and securities belonging to such society to such person as such treasurer or trustees shall appoint, and shall pay, out of the estate, assets, or effects, heritable or moveable, of such officer, all sums of money due which such officer shall have received, before any other of his

debts are paid, and before any other claim upon him shall be satisfied, and before the money directed to be levied by such process as aforesaid, or which may be recovered or recoverable under such diligence, is paid over to the party issuing such process or using such diligence ; and all such assets, lands, goods, chattels, property, estates, and effects shall be bound to the payment, discharge, and satisfaction of such claims.

Punishment of fraud in withholding money, &c.
XXIV. If any officer, member, or other person, being or representing himself to be a member of such society, or the nominee, executor, administrator, or assignee of a member thereof, or any person whatsoever, by false representation or imposition, shall obtain possession of any monies, securities, books, papers, or other effects of such society, or having the same in his possession shall withhold or misapply the same, or shall wilfully apply any part of the same to purposes other than those expressed or directed in the rules of such society, or any part thereof, it shall be lawful in England for any Justice of the Peace acting in the County or Borough in which the place of business of such society shall be situated, upon complaint made by any person on behalf of such society, to summon the person against whom such complaint is made to appear at a time and place to be named in such summons ; and any two Justices present at the time and place mentioned in such summons shall proceed to hear and determine the said complaint, in manner directed by the Act passed in the eleventh and twelfth years of Her present Majesty Chapter Forty-three ; and in Scotland every such offence may be prosecuted by summary complaint at the instance of the Procurator Fiscal of the County, or of the society, with his concurrence, before the Sheriff ; and if the said Justices or Sheriffs respectively shall determine the said complaint to be proved against such person, they shall adjudge and order him to deliver up all such monies, securities, books, papers, or other effects to the society, or to repay the amount of money applied improperly, and to pay, if they think fit, a further sum of money not exceeding twenty pounds, together with costs not exceeding twenty shillings ; and, in default of such delivery of effects, or repayment of such amount of money, or payment of such penalty and costs aforesaid, the said Justices or

Sheriffs may order the said person so convicted to be imprisoned in the Common Gaol or House of Correction, with or without hard labour, for any time not exceeding three months : Provided, that nothing herein contained shall prevent the said society, or in Scotland Her Majesty's Advocate, from proceeding by indictment against the said party ; Provided also, that no person shall be proceeded against by indictment if a conviction shall have been previously obtained for the same offence under the provisions of this Act.

Rules to be made.

XXV. Before any Friendly Society shall be established under this Act, the persons intending to establish the same shall agree upon and frame a set of rules for the regulation, government, and management of such society ; and in such rules they may, amongst other things, make provision for appointing a general committee of management of such society, and delegating to such committee all or any of the powers given by this Act to the members of Friendly Societies formed or established under or by virtue of the same ; and such rules shall set forth,

1. The name of the society and place of meeting for the business of the society :
2. The whole of the objects for which the society is to be established, the purposes for which the funds thereof shall be applicable, and the conditions under which any member may become entitled to any benefit assured thereby, and the fines and forfeitures to be imposed on any member of such society :
3. The manner of making, altering, amending, and rescinding rules :
4. A provision for the appointment and removal of a general committee of management, of a trustee or trustees, treasurer, and other officers :
5. A provision for the investment of the funds, and for an annual or periodical audit of accounts :
6. The manner in which disputes between the society and any of its members, or any person claiming by or through any member, or under the rules, shall be settled :

And the rules of every such society shall provide that all monies

received or paid on account of each and every particular fund or benefit assured to the members thereof, their husbands, wives, children, fathers, mothers, brothers or sisters, nephews or nieces, for which a separate table of contributions payable shall have been adopted, shall be entered in a separate account, distinct from the monies received and paid on account of any other benefit or fund, and also that a contribution shall be made to defray the necessary expenses of management, and a separate account shall be kept of such contributions and expenses.

Copies to be sent to the Registrar, and his certificate obtained.

XXVI. Two printed or written copies of such rules, signed by three of the intended members and the secretary or other officer, shall be transmitted to the registrar aforesaid, and the said registrar shall advise with the secretary or other officer, if required, for the purpose of ascertaining whether the said rules are calculated to carry into effect the intentions and object of the persons who desire to form such society, and if the registrar shall find that such rules are in conformity with Law and the Provisions of this Act, he shall give a certificate in the form set forth in the Second Schedule to this Act, and shall return one of the said copies to the said society, and shall keep the other in such manner as shall from time to time be directed by one of Her Majesty's Principal Secretaries of State, and for which certificate no fee shall be payable to the said registrar; and all rules, when so certified as aforesaid, shall be binding on the several members of the said society: Provided always, that it shall not be lawful for the said registrar to grant any such certificate to a society assuring to any member thereof a certain annuity or certain superannuation, deferred or immediate, unless the tables of contributions payable for such kind of assurance shall have been certified under the hand of the actuary to the Commissioners for Reduction of the National Debt, or by an actuary of some Life Assurance Company established in London, Edinburgh, or Dublin, who shall have exercised the profession of actuary for at least five years, and such certificate be transmitted to the registrar, together with the copies of the rules aforesaid.

Actuary's certificate to be sent with the copies in case of tables of annuities.

Rules may be
altered,
amended,
rescinded, or
new rules
made.

XXVII. After the rules of a Friendly Society shall have been so certified by the registrar as aforesaid, it shall be lawful for such society, by resolution at a meeting specially called for that purpose, to alter, amend, or rescind the same or any of them, or to make new rules ; and it shall be lawful for any Friendly Society formed and established under any of the Acts hereby repealed to alter, amend, or rescind the rules by which their society is governed, regulated, or managed, or to make new rules : Provided always, that two copies of the proposed alterations or amendments, and of such new rules, signed by three members of such society, and the secretary or other officer, shall be transmitted to the said registrar, to one of which shall be attached a declaration by the secretary or one of the officers of such society that in making the same the rules of such society respecting the making, altering, amending, and rescinding rules, or the directions of the Act under which such society was established, have been duly complied with ; and if the said registrar shall find that such alterations, amendments, or new rules are in conformity with law, he shall give to the Society a certificate in the form set forth in the Schedule to this Act, and return one of the copies to the Society, and shall keep the other, with the rules of such society, in his custody, and for which certificate no fee shall be payable to the said registrar, and as against such member or person such certificate shall be conclusive of the validity thereof ; and all rules, alterations, and amendments, when so certified as aforesaid, shall be binding on the several members of the said society, and all persons claiming on account of a member or under the said rules ; but unless and until the same shall be so certified as aforesaid such rules, alterations, and amendments shall have no force or validity whatsoever.

When place
of Meeting
is altered,
Notice to be
sent to Registrar.

XXVIII. Whenever any Friendly Society established under this Act or under any of the Acts hereby repealed shall change its place of business, notice of such change, under the hands of two of the trustees or three members and secretary or other officer, shall, within fourteen day thereafter, be sent to the said registrar.

Circulating also copies of rules, &c. a misdemeanor.

XXIX. If any person shall give to any member of a Friendly Society established under this Act or under any of the said repealed Acts, or to any person intending or applying to become a member of such society, a copy of any rules, or of any alterations or amendments of the same, other than those respectively which have been enrolled with any Clerk of the Peace or certified by the registrar, with a copy of his certificate appended thereto, under colour that the same are binding upon the members of such society, or shall make any alterations in or addition to any of the rules or tables of such society after they shall have been respectively enrolled or certified by the registrar, and shall circulate the same, purporting that they have been duly enrolled or certified under this or any of the said repealed Acts, when they have·not been so duly enrolled or certified, every person so offending shall be deemed guilty of a misdemeanor.

Rules, how received in evidence.

XXX. All rules and tables of any society established under this Act or any of the said repealed Acts, and all alterations and amendments thereof, and all copies thereof or extracts therefrom, and all writings and documents relating to a Friendly Society, and purporting to be signed by the registrar, shall, in the absence of any evidence to the contrary, be received in all Courts of Law and Equity, and elsewhere, without proof of the signature thereto.

On death of Member, sum under 50l. may be paid without administration.

XXXI. When, on the death of any member of a society established under this Act or any of the said repealed Acts, a sum of money not exceeding fifty pounds shall become payable, the same shall be paid by the trustees of such society to the person directed by the rules thereof, or nominated by the deceased, in writing deposited with the secretary (such person being the husband, wife, father, mother, child, brother or sister, nephew or niece of such member); and in case there shall be no such direction or nomination, or the person so nominated shall have died before the deceased member, or in case the member shall have revoked such nomination, then such sum shall be paid to the person who shall appear to the said trustees to be entitled under the Statute of Distributions to receive the same, without taking out Letters of Administration in England or Ireland, and without Confirmation in Scotland : Provided, that

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that wherever the trustee or trustees of any such
society, after the decease of any member thereof, shall
have paid and divided any such sum of money to or amongst any
person or persons who shall at the time of such payment appear to
such trustee or trustees to be entitled to the effects of any deceased
member who has died intestate, without having appointed any
nominee as aforesaid, the payment of any such sum shall be valid
and effectual with respect to any demand from any other person or
persons as next of kin of such deceased member, or as the lawful
representative or representatives of such member, against the funds
of such society or against the trustees thereof ; but nevertheless
such next of kin or representative shall have his or her lawful
remedy for such money so paid as aforesaid against the person or
persons who shall have received the same.

Indemnity to trustees.

XXXII. The trustee or trustees of every Friendly
Society established under this Act or any of the said
repealed Acts shall from time to time, with the consent of the
committee of management of such society, or of a majority of the
members of such society present at a general or special meeting
thereof, or in accordance with the rules of such society, invest the
funds of such society, or any part thereof, to any amount, in any
Savings Bank, or in the Public Funds, or with the Commissioners
for the Reduction of the National Debt, as hereinafter mentioned,
or in such other security as the rule of such society may direct, not
being the purchase of house or land, (save and except the purchase
of buildings wherein to hold the meetings or transact the business
of such society, as herein-before mentioned,) and not being the
purchase of shares in any joint stock company or other company,
with or without charter of incorporation, and not being personal
security, except in the case of a member of one full year's stand-
ing at least, and in respect of a sum not exceeding one half the
amount of his assurance on life, such member providing the written
security of himself and two satisfactory sureties for repayment,
and in case of such member's death before repayment the amount
of such advance, with interest, may be deducted from the sum so
assured, without prejudice in the meantime to the operation of
such security.

Funds, how invested.

Funds may be invested with the Commissioners of the National Debt.

XXXIII. Every Friendly Society established under this Act which does not assure the payment in any event of a sum exceeding two hundred pounds, or an annuity exceeding thirty pounds per annum, may pay any sum of money not less than fifty pounds into the Bank of England or Ireland, to the account of the Commissioners for the Reduction of the National Debt upon the declaration of the Trustee or of the trustees, or any two or more of them, that such monies belong exclusively to the said society; and the cashier of the Bank of England is hereby required to receive all such monies, and to place the same to the account raised in the name of the said Commissioners in the book of the bank, named " The Fund for Friendly Societies;" and if such declaration shall not be true, then and in every such case the sum of money so paid in on such declaration shall be forfeited to the said Commissioners, and shall be applied by them in the manner directed by any act or acts for the time being in force relating to Savings' Banks with respect to the account of such banks; and the Regulation of receipts, certificates, or orders concerning Savings' Banks shall be deemed applicable to monies paid in as aforesaid under the authority of this act, as if the same had been herein repeated; and every such society, on paying money directly into the bank as aforesaid, shall be entitled to receive receipts bearing interest at the rate of Twopence per cent. per diem: Provided, that every society which shall deposit any part of its funds in any Savings' Bank, or with the Commissioners for Reduction of the National Debt, shall furnish to the said Commissioners from time to time such accounts as they may require in reference to the funds so deposited.

What interest old societies shall have.

XXXIV. Every Society already established under any of the acts hereby repealed, which shall have heretofore invested any part of its funds with the Commissioners for the Reduction of the National Debt, shall be entitled to pay into the Bank of England or Ireland in sums of not less than fifty pounds, money received from members on account of assurances made before the passing of this Act, and to receive receipts for the same bearing interest at such rate or rates as

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such society has hitherto been entitled to receive on account of such assurances; that is to say, for money invested with the Commissioners by any society legally established before the twenty-eighth day of July, in the year one thousand eight hundred and twenty-eight, on account of any assurance made before the fifteenth day of August in the year one thousand eight hundred and fifty, threepence per centum per diem; and on account of any assurance effected after that day, twopence per centum per diem; and for money invested with the Commissioners by any society established between the twenty-eighth day of July in the year one thousand eight hundred and twenty-eight and the fifteenth day of August in the year one thousand eight hundred and fifty, on account of assurances made before the fifteenth day of August in the year one thousand eight hundred and fifty, twopence halfpenny per centum per diem; and on account of any assurance effected after that day, twopence per centum per diem; and for money invested with the Commissioners by any society established since the fifteenth day of July one thousand eight hundred and fifty, the sum of twopence per centum per diem; provided that the trustees of every society which shall have invested or shall invest any part of its funds with the said Commissioners shall furnish from time to time such accounts and returns as the said Commissioners shall require, and shall satisfy the said Commissioners that they are legally entitled to receive such interest as aforesaid, and to make such further investment.

Re-deposit-ing of money withdrawn.
XXXV. Where any Friendly Society shall withdraw money invested by them with the Commissioners for the Reduction of the National Debt, such society shall not be entitled to make any further deposit with the said Commissioners without the consent of the said Commissioners, or of the Comptroller General or Assistant Comptroller under them.

Transfer of stock.
XXXVI. Whenever it shall happen that any person, being or having been a trustee of any society established under this act or any act hereby repealed, and whether he shall have been appointed before or after the legal establishment thereof, in whose name any part of the several stocks, annuities, and funds belonging to any such society, transferable

at the Bank of England or Ireland, or in the books of the Governor and Company of the Bank of England or Ireland, or in any Savings' Bank, is or shall be standing, shall be out of England, Ireland or Scotland respectively, or shall have been removed from his office of trustee, or shall be a bankrupt, insolvent, or lunatic, or it shall be unknown whether such trustee is living or dead, it shall be lawful for the Registrar, after receiving an application in writing from the secretary of the society and three members thereof, and upon proof satisfactory to such registrar, to direct the Accountant-General or other proper officer for the time being of the said Governor and Company of the Bank of England or Ireland, or of any Savings' Bank, to transfer in the books of the said Company or of the said Savings' Bank such stocks, annuities, or funds standing as aforesaid, into the name of the trustee who shall be newly appointed, and to pay to him from time to time the dividends thereof; and if one of two or more such trustees shall die, or be removed from his office of trustee, or become bankrupt or insolvent, it shall be lawful for the registrar, on the like application, to direct that the other or others of the trustees shall transfer such stock, annuities, or funds into the name of such person as may have been appointed in his stead, jointly with the continuing trustee or trustees.

Power of Attorney, &c. not liable to stamp duty.

XXXVII. No copy of rules, nor power, warrant, or letter of attorney granted by any person as trustee of any society established under this Act or any of the Acts hereby repealed, for the transfer of any share in the public funds standing in the name of such trustee, nor any order or receipt for money contributed to or received from the funds of any such society, by any person liable or entitled to pay or receive the same by virtue of the rules thereof or of this Act, nor any bond to be given to or on account of any such society, or by the treasurer or any officer thereof, nor any draft or order, nor any form of policy, nor any appointment of any agent, nor any certificate or other instrument for the revocation of any such appointment, nor any other document whatever, required or authorized by or in pursuance of this Act or the rules of any society, shall be

Limitation of exemptions to so-

liable to stamp duty: Provided that no exemption from any of the duties granted by any Act or Acts relating

cieties not
assuring
above 200*l*.   to stamp duties shall be deemed to extend to any
society which shall assure the payment of money
exceeding two hundred pounds, or which shall assure the pay-
ment of any money on the death of a member to any person,
except executors, administrators, or assigns of such member, or
the husband, wife, father, mother, child, brother, sister, nephew
or niece of such member.

No member
to receive
more than
200*l*. or 30*l*.
a year from
any number
of societies.   XXXVIII. If any person shall become a member
of more than one Society, whereby certain benefits
shall accrue on account of the same kind of assur-
ance from more than one society, it shall not be lawful
for him, or for any person entitled through or under him or by
reason of his membership, or for any number of such persons in
the aggregate, to receive more than two hundred pounds, or in the
case of annuities, thirty pounds a year, from such societies collec-
tively; and in any case where a person shall so as aforesaid be a
member of more than one society, and he, or any other person or
persons, shall be entitled to any benefit in gross or by way of
annuity from any such society, he, or (as the circumstances may
require) every such other person, shall, before he shall receive any
such benefit from any of such societies, make and sign a declara-
tion that the total value of all benefits accruing or which shall
have accrued in respect of any one kind of assurance does not
exceed the value of two hundred pounds, or, in the case of
annuities, thirty pounds a year; and it shall be lawful for any
society to require any member or any other person who shall be
entitled to any such benefit, before he shall receive the same, to
make and sign a declaration to the same effect, or that such mem-
ber was not, when the benefit accrued, a member of any other
association; and if any person shall knowingly make any false
or fraudulent declaration in any such case he shall be guilty of
misdemeanor.

Trustees may
subscribe to
a hospital or
provident
institution.   XXXIX. The trustees of any Friendly Society
may, out of the funds thereof, subscribe to any hos-
pital, infirmary, charitable or other provident institu-
tion, such annual or other sum as may be agreed upon by the
Committee of Management, or by a majority of the members at a

meeting called for that purpose, in consideration of any member of such society, his wife, child, or other person nominated, being eligible to receive the benefits of such hospital or other institution according to the rules thereof.

As to the determination of disputes according to the rules.

XL. Every dispute between any member or members of any society established under this Act or any of the Acts hereby repealed, or any person claiming through or under a member, or under the rules of such society, and the trustee, treasurer, or other officer, or the Committee thereof, shall be decided in a manner directed by the rules of such society, and the decision so made shall be binding and conclusive on all parties, without appeal: provided that where the rules of any society established under any of the acts hereby repealed shall have directed disputes to be referred to justices, such disputes shall from and after the first day of August one thousand eight hundred and fifty-five, be referred to and decided by the County Court as herein-after mentioned.

In what cases by the County Court.

XLI. In all Friendly Societies established under this Act or any of the said repealed Acts, all applications for the removal of any trustee, or for any other relief, order, or direction, or for the settlement of disputes that may arise or may have arisen in any society the rules of which do not prescribe any other mode of settling such disputes, or to enforce the decision of any arbitrators, or to hear or determine any dispute, if no arbitrator shall have been appointed or if no decision shall be made by the said arbitrators within forty days after application has been made by the member or person claiming through or under a member or under the rules of the society, shall be made to the County Court of the district within which the usual or principal place of business of the society shall be situate; and such court shall, upon the application of any person interested in the matter, entertain such application, and give such relief, and make such orders and directions in relation to the matter of such application, as herein-after mentioned, or as may now be given or made by the Court of Chancery in respect either of its ordinary or its special or statutory jurisdiction; and the decision of such County Court upon and in relation to such application as aforesaid shall not be subject to

any appeal : Provided always, that in Scotland the sheriff within his county, and in Ireland the assistant barrister within his district, shall have the same jurisdiction as is hereby given to the Judge of a County Court.

Order of
County
Court,
how enforced.

XLII. In all cases where the order of such County Court shall be for the payment of money, the same may be enforced in the same manner as the ordinary judgments of such court are enforced ; but where the order of the said court shall be for the doing of some act, not being for the payment of money, it shall be lawful for the Judge of such County Court in his said order to order the party to do such act, or that in default of his doing it he shall pay a certain sum of money ; and in case he refuse or neglect to do the act required, upon demand in that behalf, the sum of money or penalty in the said order may then be recovered in the same manner as a judgment for debt or damages in such court ; and it shall not be lawful to remove the same by certiorari or other writ or process to any superior Court of Record.

Lord Chan-
cellor may
make orders
for regulat-
ing the pro-
ceedings in
this respect.

XLIII. Provided, however, That the Lord Chancellor may make such orders for regulating the proceedings by and before the Judges of County Courts under this Act as he may think fit ; and in Scotland the Court of Session shall have the like power by Act of Sederunt as regards proceedings before sheriffs under this Act ; and, subject to such orders and Acts of Sederunt respectively, such judges and sheriffs may regulate the proceedings before them respectively so as to render them as summary and inexpensive as conveniently may be.

In the case of
societies
whose rules
are not certi-
fied, disputes
between the
society and
its own mem-
bers to be
settled as in
cases of certi-
fied societies.

XLIV. In the case of any Friendly Society established for any of the purposes mentioned in Section IX. of this Act, or for any purpose which is not illegal, having written or printed rules, whose rules have not been certified by the Registrar, provided a copy of such rules shall have been deposited with the Registrar, every dispute between any member or members of such society, and the trustees, treasurer, or other officer, or the committee of such society, shall be decided in manner herein-

before provided with respect to disputes, and the decision thereof, in the case of societies to be established under this Act, and the sections in this Act provided for such decision, and also the section in this Act which enacts a punishment in case of fraud or imposition by an officer, member, or person. shall be applicable to such uncertified societies: Provided always, that nothing herein contained shall be construed to confer on any such society whose rules shall not have been certified by the Registrar, or any of the members or officers of such society, any of the powers, exemptions, or facilities of this Act, save and except as in and by this section is expressly provided.

<p>Returns to the Registrar, when and how to be made. XLV. The trustees of Friendly Societies established under this Act or under any of the repealed Acts, or the officer thereof appointed to prepare returns, shall, once in every year, in the months of January, February, or March, transmit to the Registrar a general statement of the funds and effects of such society during the past twelve months, or a copy of the last annual report of such society, and shall also, within three months after the expiration of the month of December one thousand eight hundred and fifty-five, and so again within three months after the expiration of every five years succeeding, transmit to the said Registrar a return of the rate or amount of sickness and mortality experienced by such society within the preceding five years, in such form as shall be prepared by the said Registrar, and an abstract of the same shall be laid before Parliament; and the Registrar shall also lay before Parliament every year a report of his proceedings, in his office of Registrar, and of the principal matters transacted by Friendly Societies which have come under his cognizance during the past year.</p>

<p>Certain societies established for granting annual payments to nominees before the year 1850 to have privileges of this Act. XLVI. And whereas under the provisions of the Acts hereby repealed, or some of them, certain associations or societies have been formed in England and Ireland for the provident and charitable purpose of securing annual payments to the nominees of the members thereof, contingent upon the death of such members, and have invested their funds in the manner provided by such Acts, and doubts may arise whether such asso-</p>

ciations or societies will be entitled to the exemptions and privi-
leges by this Act conferred in the event of such annual payments
amounting in the aggregate to more than thirty pounds ; and it is
expedient to remove such doubts, and to give protection to such
associations or societies, and to the funds thereof : Be it therefore
enacted, that notwithstanding anything in this Act contained to the
contrary, all such associations or societies as were founded and sub-
sisting under the provisions of the said Acts previously to the
fifteenth day of August one thousand eight hundred and fifty,
shall enjoy the exemptions and privileges by this Act conferred
on societies to be established under the provisions of this Act as
fully as if they had been registered and certified under this Act,
and notwithstanding that the contingent annual payments to which
the nominees of the present or future members of such associations
or societies may be come entitled shall exceed in the aggregate
the sum of thirty pounds.

Extra contri-
bution may
be demanded
of a member
serving in the
militia.

XLVII. In any case where the rules of any society
already enrolled or certified have provided that a mem-
ber shall be deprived of any benefit by reason of his
enrolment or service in the militia, it shall be lawful
for the trustees of such society to require of any member a contri-
bution exceeding the rate of contribution hitherto payable by such
member, to an amount not exceeding one-tenth of such rate,
during the time such member shall be serving out of the United
Kingdom, or to suspend all claim of such member to any benefits
of such society, and all claim of the society to any contributions
payable by such Member, during the time he may be serving in
the militia out of the United Kingdom, provided that such suspen-
sion shall cease so soon as the said member shall return to the
United Kingdom, and he shall thereupon be replaced on the same
footing as before he went abroad with the regiment to which he
belongs.

Act to apply
to societies
constituted
under the
Industrial
and Provi-
dent Societies
Act, 1852.

XLVIII. All the provisions of this Act shall apply
to all societies constituted under the Industrial and
Provident Societies Act, 1852, in the same manner as
the laws in force relating to Friendly Societies at the
date of the passing of the said Industrial and Provi-

dent Societies Act, 1852, are by the said last-mentioned Act directed to apply to societies constituted thereunder ; and the limitation hereinbefore contained of the amount of annuities and sums payable on the death of any person, or on any other contingency, in the case of societies established under this Act, shall apply to all societies constituted under the said Industrial and Provident Societies Act, 1852.

Interpretation of "society."

XLIX. The word " Society" shall extend to and include every branch of a society, by whatever name it may be designated.

Extension of Act.

L. This Act shall extend to Great Britain and Ireland, and the Channel Isles, and the Isle of Man.

Commencement of Act.

LI. This Act shall commence and take effect from the first day of August one thousand eight hundred and fifty-five.

SCHEDULES referred to by the foregoing Act.

FIRST SCHEDULE.

Reference to Act.	Title of Act.	Extent of Repeal.
33 Geo. 3. c. 54. -	An Act for the Encouragement and Relief of Friendly Societies.	The whole Act.
35 Geo. 3. c. 111. -	An Act for more effectually carrying into execution an Act made in the Thirty-third Year of the Reign of His present Majesty, intituled "An " Act for the Encouragement and " Relief of Friendly Societies," and for extending so much of the Powers thereof as relates to the framing Rules and Regulations for the better Management of the Funds of such Societies, and the Appointment of Treasurers to other Institutions of a charitable nature.	The whole Act.
36 Geo. 3. c. 68.(Irish)	An Act for the Encouragement and Relief of Friendly Societies.	The whole Act.
43 Geo. 3. c. 111.	An Act for enabling Friendly Societies intended to be established under an Act passed in the Thirty-third Year of the Reign of His present Majesty to rectify Mistakes made in the Registry of their Rules.	
49 Geo. 3. c. 58. -	An Act to explain and render more effectual an Act passed in the Parliament of Ireland, in the Thirty-sixth Year of His present Majesty's Reign, for the Encouragement and Relief of Friendly Societies.	The whole Act.
49 Geo. 3. c. 125. -	An Act to amend an Act made in the Thirty-third Year of his present Majesty, for the Encouragement and Relief of Friendly Societies.	The whole Act.
59 Geo. 3. c. 128. -	An Act for further Protection and Encouragement of Friendly Societies, and for preventing Frauds and Abuses therein.	The whole Act.
6 Geo, 4. c. 74. -	An Act for consolidating and amending the Laws relating to Conveyances and Transfers of Estates and Funds vested in Trustees who are Infants, Idiots, Lunatics, or Trustees of unsound Mind, or who cannot be compelled or refuse to act; and also the Laws relating to Stocks and Securities belonging to Infants, Idiots, Lunatics, and Persons of unsound Mind.	So much of Section II. as relates to Friendly Societies.

Reference to Act.	Title of Act.	Extent of Repeal.
10 Geo. 4. c. 56. -	An Act to consolidate and amend the Laws relating to Friendly Societies.	The whole Act.
2 W. 4. c. 37. -	An Act to amend an Act of the Tenth Year of His late Majesty King George the Fourth, by extending the Time within which pre-existing Societies must conform to the Provisions of that Act.	
4 & 5 W. 4. c. 40. -	An Act to amend an Act of the Tenth Year of His late Majesty King George the Fourth, to consolidate and amend the Laws relating to Friendly Societies.	
3 & 4 Vict. c. 73. -	An Act to explain and amend the Acts relating to Friendly Societies.	The whole Act.
9 & 10 Vict. c. 27. -	An Act to amend the Laws relating to Friendly Societies.	
13 & 14 Vict. c. 115	An Act to consolidate and amend the Laws relating to Friendly Societies.	The whole Act.
15 & 16 Vict. c. 65	An Act to continue and amend an Act passed in the Fourteenth Year of the Reign of Her present Majesty, to consolidate and amend the Laws relating to Friendly Societies.	The whole Act.
16 & 17 Vict. c. 123.	An Act to amend the Laws relating to the Investments of Friendly Societies.	The whole Act.
17 & 18 Vict. c. 50.	An Act to continue an Act of the Twelfth Year of Her present Majesty, for amending the Laws relating to Savings Banks in Ireland, and to authorise Friendly Societies to invest the whole of their Funds in Savings Banks.	Section 2.
17 & 18 Vict. c. 101.	An Act to continue and amend the Acts now in force relating to Friendly Societies.	The whole Act.

SECOND SCHEDULE.

FORM of REGISTRAR'S CERTIFICATE to RULES of FRIENDLY SOCIETIES.

I HEREBY certify, That the foregoing Rules [or the Alterations or Amendments of the Rules] of the   Society at
in the County of   are in conformity with Law, [and in the Case of a new Society] and that the Society is duly established from the present Date, and is subject to the Provisions and entitled to the Privileges of the Acts relating to Friendly Societies.

The Rates of Contributions and Payments are stated to have been prepared by A. B., Actuary of   or [as the Case may be] are not stated to have been prepared by any Actuary.

THIRD SCHEDULE.

Form of Bond.

Know all Men by these Presents, That we, *A.B.* of   Treasurer
&c. [*as the Case may be*] of the   Society, established
at   in the County of   and *C.D.*
of   (as Surety on behalf of the said *A.B.*)
are jointly and severally held and firmly bound to *A B.* of
C.D. of   and *E.F.*   the Trustees of the said
Society, in the Sum of   to be paid to the said *A.B.*, *C.D.*,
and *E.F.* as such Trustees or their Successors, Trustees for the Time being,
or their certain Attorney, for which Payment well and truly to be made we
jointly and severally bind ourselves, and each of us by himself, our and each
of our Heirs, Executors, and Administrators, firmly by these Presents, sealed
with our Seals.   Dated the   Day of
in the Year of our Lord   .

Whereas the above-bounden *A.B.* hath been duly appointed Treasurer, *&c.*
[*as the Case may be*] of the   Society, established as afore-
said, and he, together with the above-bounden *C.D.* as his Surety, have
entered into the above-written Bond, subject to the Condition herein-after
contained : Now therefore the Condition of the above-written Bond is such,
that if the said *A.B.* shall and do justly and faithfully execute his Office of
Treasurer, *&c.* [*as the Case may be*] of the said Society established as afore-
said, and shall and do render a just and true Account of all Monies received
and paid by him, and shall and do pay over all the Monies remaining in his
Hands, and assign and transfer or deliver all Securities and Effects, Books,
Papers, and Property of or belonging to the said Society in his Hands or
Custody, to such Person or Persons as the said Society shall appoint,
according to the Rules of the said Society, together with the proper or legal
Receipts or Vouchers for such Payments, and likewise shall and do in all
respects well and truly and faithfully perform and fulfil his Office of Trea-
surer, *&c.* [*as the Case may be*] to the said Society, according to the Rules
thereof, then the above-written bond shall be void and of no effect ; otherwise
shall be and remain in full force and virtue.

A PRACTICAL TREATISE

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Containing a Review of

THEIR PAST HISTORY AND PRESENT CONDITION;

AND AN

Exposition of the Measures required for their internal re-Organization, and for placing them on a sound Financial Basis.

WITH

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AND
The Audit of Public Institutions.

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Of the Inner Temple, Barrister-at-Law;
Formerly Fellow and Sadlerian Lecturer of Queens' College, Cambridge;
Author of a " Treatise on Industrial Investments," &c.

The 3rd Edition

OF

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OF

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AND

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IN TWO PARTS.

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PRINCIPLES AND PRACTICE;

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-OPERATIVE ASSOCIATIONS, or INDUSTRIAL TRADE
RIKES, TRADE UNIONS, Mutual Protection Societies, Local Enterprise
anual to the Managers and Promoters of such Associations.

TREATISE

ON

FRIENDLY SOCIETIES,

CONTAINING

An Exposition of the True Law of Sickness,

WITH

RULES AND TABLES,

AND

Remarks on the Extension of Industrial Life Assurance, and the Principles involved in the Valuation of Post Obits, Reversions, and the Liabilities of Friendly and other Assurance Societies.

BY

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