properly form a prominent feature. It is unnecessary to enlarge further on the benefit to students of medical and veterinary science, to agriculturists and stockowners, and to the public generally, to be derived from a department such as this. One thing only is wanting to secure its establishment and success—namely money to meet the necessary expenses. Naturally the College looked for help, and appeal to those on whose behalf they are working. The nucleus of a fund has already been formed, and the first contribution to it was a handsome donation of one hundred guineas by a respected Member of the National Veterinary Association, Mr. Clement Stephenson, of Newcastle-upon-Tyne.

Whilst earnestly desiring to recommend this matter to the consideration of the Members of this Association, I venture to express the hope that at no distant date the scheme as above outlined will have so prospered and developed that the veterinary students of the North of England, instead of having to seek their education at a distance, will be able, not only to study Comparative Pathology, but to complete their entire curriculum, and even obtain their diplomas after examination in the University of Durham College of Medicine at Newcastle.

HENRY E. ARMSTRONG.

SUMMARY OF SEVERAL LIFE MALE TABLES.*

By Dr. WILLIAM OGLE, M.A., M.D., F.R.C.P.

THE following table has been drawn up in a form that will facilitate ready comparison between several life tables, based on the mortality of males, either in different ranks of life, or living under different conditions of time or place, or selected as being in a healthy condition at the date when they first came under observation. It has been thought that such a summary table may be of use to those who are interested in the question of class mortality.

The table gives in its successive columns the percentage of males of 10, 15, 20, etc., years of age who, according to the date in the several life tables, survive 5, 10, 15, etc., years. The life tables thus summarised are:—

(1) The new English life table. This is a table based on the mortality of all males in England and Wales in the decennium 1871-80. It was constructed by myself, and published in the supplement to the Forty-fifth Annual Report of the Registrar-General.

(2) The old English life table. This is the well-known table constructed by Dr. Farr, on the basis of the mortality in England and Wales in the seventeen years 1838-54.

(3) The healthy males table. This is the healthy males table of the Institute of Actuaries, and is based on the experience of the principal insurance societies in regard to insured, and therefore exceptionally healthy lives.

(4) The healthy districts table. This is a table constructed by Dr. Farr, on the basis of the male mortality in 1849-53 in sixty-three selected districts of England and Wales, in none of which had the mean annual death-rate during the decennium 1841-50 exceeded 17 per 1000. It is printed in the Thirty-third Annual Report of the Registrar-General.

(5) The upper class experience table. This is a table constructed by Mr. C. Ansell, from data collected by him as to men in the upper and professional classes. It is given in his "Statistics of Families in the Upper and Professional Classes."

(6) The clerical experience table. This is a table based on data collected by the Rev. John Hodgson, as to rather more than 5,000 clergymen who lived between 1760 and 1860. The table is published in Mr. Hodgson's "Observation on Duration of Life among the Clergy of England and Wales."

It is not proposed to enter here on a detailed comparison of these tables; still a few remarks upon them may be permissible.

A. The old and the new English tables may be compared in order to see what change has occurred in the general male mortality in the interval between 1838-54 and 1871-80. The comparison shows that at the earlier date the chances were less favourable at the younger ages, and more favourable at the older ages than at the more recent date.

E.g., of 100 children just ten years of age 89 would survive after 20 more years by the new table, but only 86 by the old table; while on the other hand after an interval of fifty years the survivors by the old table would be 52, but only 51 by the new table.

B. The healthy males table may be compared either with the old or the new English table, but preferentially with the old table as nearer it in date. It shows, as might be anticipated in a table based on male lives that have been insured and were presumably healthy at the date of insurance, considerably larger survival figures throughout than does the English life table.

C. The healthy males table may also be compared with the healthy districts table. Such comparison tells in favour of the healthy males table for the earlier ages, and for short survival periods; while the reverse is the case, and the advantage is on the side of the healthy districts at the more advanced ages and for long survival periods.

E.g., of 100 males aged 15 there are 26 survivors after an interval of sixty years by the healthy males' table, but 31 by the healthy districts table; whereas after shorter intervals up to 25 years,

* "Journal of the Statistical Society," vol. 7, pt. iv., page 640.

there are more survivors of the healthy males than in the healthy districts.

This is not intelligible. The healthy districts table was based on the mortality in certain selected districts which were considered to have been healthy, because the general death-rate had been exceptionally low at every age-period; but the healthy males table was based on males exceptionally healthy only at the start, that is at the date of insurance. Thus the difference at the starting between the two tables is very small, and such difference as exists is in favour of the healthy males, but in course of time the advantage derived by them from their original selection becomes smaller and smaller, and at last it is entirely wiped out and surpassed by the effects of what may almost be called the continuous selection of healthy lives in the healthy district table.

D. The upper class experience table may be compared with the old English life table to show the effects of comparatively easy circumstances. Doubtlessly, were the figures given for children under ten, the comparison would be enormously in favour of the upper class tables; but taking children of ten years of age with whom the tables begin, there is not much advantage on the side of the upper class for short periods of survival. The survivors after five years are the same in number in each table; then 95, 91, 87, 83, are the survivors per cent. after 10, 15, 20, 25 years by the upper class table. So also at 20 and 25 years of age the chances of survival for the short periods of five or ten years are almost as good for the general population as for the upper classes. But the difference between the two becomes very great when either more advanced ages are taken as the starting point, or longer periods of survival are considered. Thus of 100 children just ten years old, 32 survive after sixty years' interval by the English table, but 43 by the upper class table; and of 100 men 55 years of age, 87 are alive after five years' interval by the English table, but 91 by the upper class table. It is in the latter part of life that the advantages of easy circumstances are most conspicuous. In youth or early manhood, so far as immediate chances of living go, there is much more equality.

E. The clerical experience table may be most appropriately compared with the upper class table, which includes men engaged in all the higher professions. The advantage is largely on the side of the clergy in all the periods of life, as might be anticipated, seeing that no very unhealthy men are admitted into the clerical ranks; but strangely the advantage appears to be on the other side for the later ages or for long survivals. Thus of clergymen aged 35 a larger percentage survives than is the case with the upper classes generally at each quinquennium until sixty years of age are reached; then in the next quinquennium the number of survivors in the two groups is the same,

namely, 62, and after this the percentage of survivors is lower for the clergy than for the upper classes generally. It is not easy to see any satisfactory explanation of this, for the wear and tear of a clergyman's life is probably much less on an average than the wear and tear of other professional lives, and clerical habits are surely favourable to vitality in a more than average degree, so that it might fairly be expected that the advantage enjoyed by clergymen in the earlier ages would increase rather than diminish with the advance of years. It is impossible therefore to avoid the suspicion that these tables, or one or the other of them, have been based on too small a number of observations.

Age.	Life Table.	Percentage of Males that Survive.											
		5 years.	10 years.	15 years.	20 years.	25 years.	30 years.	35 years.	40 years.	45 years.	50 years.	55 years.	60 years.
10	New English .	98	96	93	89	84	79	74	67	60	51	42	31
	Old	98	94	90	86	82	77	72	66	59	52	43	32
	Healthy Males	98	96	93	90	86	82	78	73	67	59	49	38
	„ Districts	98	96	92	89	85	81	77	73	68	62	53	43
	Upper Class												
	Experience .	98	95	91	87	83	79	75	70	65	59	51	43
15	New English .	98	94	90	86	81	75	68	61	52	43	32	21
	Old	97	93	88	84	79	74	68	61	53	44	33	22
	Healthy Males	98	95	91	88	84	79	74	68	60	50	39	26
	„ Districts	97	94	90	86	83	79	74	69	63	54	43	31
	Upper Class												
	Experience .	97	93	88	84	80	76	71	66	60	52	43	?
20	New English .	97	93	88	83	77	70	62	54	44	33	21	
	Old	96	91	87	82	76	70	63	55	45	34	23	
	Healthy Males	97	93	90	86	81	76	69	61	51	40	27	
	„ Districts	96	93	89	85	81	76	71	65	56	45	32	
	Upper Class												
	Experience .	96	91	87	83	78	73	68	62	54	45	?	
25	New English .	96	91	86	79	73	65	56	45	34	22		
	Old	95	90	85	79	73	66	57	47	36	24		
	Healthy Males	97	93	88	84	78	71	63	53	41	28		
	„ Districts	96	92	88	84	79	74	67	58	46	33		
	Upper Class												
	Experience .	95	91	86	82	76	71	65	56	47	?		
30	New English .	97	94	91	87	82	76	68	58	46	33		
	Old	95	89	83	76	67	58	47	35	23			
	Healthy Males	96	92	87	81	74	66	55	42	29			
	„ Districts	96	92	87	82	77	70	60	48	34			
	Upper Class												
	Experience .	95	91	86	80	75	70	59	49	?			
35	New English .	97	94	90	85	78	70	60	47	34			
	Old	94	87	80	71	61	50	37	24				
	Healthy Males	94	88	81	73	63	52	40	26				
	„ Districts	95	90	84	77	68	57	44	30				
	Upper Class												
	Experience .	96	91	86	80	73	63	50	35				
	Experience .	95	90	84	79	71	62	51	?				
	Clerical . . .	96	92	87	81	72	62	49	35				

LIFE TABLES—continued.

Age.	Life Table.	Percentage of Males that Survive.										
		5 years.	10 years.	15 years.	20 years.	25 years.	30 years.	35 years.	40 years.	45 years.	50 years.	55 years.
40	New English . . .	93	85	75	65	53	39	26				
	Old	93	86	77	67	55	42	28				
	Healthy Males . .	95	88	81	72	60	46	31				
	„ Districts . . .	95	90	84	76	66	53	37				
	Upper Class . . .											
	Experience . . .	95	88	83	75	65	54	?				
45	Clerical	96	90	83	75	64	51	36				
	New English . . .	91	81	70	57	43	28					
	Old	92	83	72	59	45	30					
	Healthy Males . .	93	85	76	63	49	33					
	„ Districts . . .	94	88	80	69	55	39					
	Upper Class . . .											
50	Experience . . .	93	87	79	69	57	?					
	Clerical	94	87	78	67	53	38					
	New English . . .	89	77	62	47	30						
	Old	90	78	65	49	32						
	Healthy Males . .	91	81	68	52	35						
	„ Districts . . .	93	85	73	59	42						
55	Upper Class . . .											
	Experience . . .	94	85	74	61	?						
	Clerical	92	83	71	56	40						
	New English . . .	86	70	52	34							
	Old	87	72	55	36							
	Healthy Males . .	88	74	57	39							
60	„ Districts . . .	91	79	63	45							
	Upper Class . . .											
	Experience . . .	91	79	65	?							
	Clerical	90	77	61	43							
	New English . . .	81	61	40								
	Old	83	63	42								
65	Healthy Males . .	84	65	44								
	„ Districts . . .	86	69	49								
	Upper Class . . .											
	Experience . . .	87	72	?								
	Clerical	85	68	48								
	New English . . .	75	49									
70	Old	76	50									
	Healthy Males . .	77	52									
	„ Districts . . .	80	57									
	Upper Class . . .											
	Experience . . .	83	?									
	Clerical	79	56									

POISONING BY CARBOLIC ACID.—A succession of cases of poisoning by carbolic acid at Liverpool has excited the attention of the Health Committee, and the Town Clerk has been instructed to write to the Privy Council urging the desirability of placing the sale of carbolic acid under the same restrictions as other poisons.

VENTILATION OF SEWERS.

THE following paper was read by John McCurdy, M.D., at the annual meeting of the Ohio State Sanitary Association, at Toledo.

Those eminent in qualifications for judging say that there is no agent so productive of disease in its protean forms as bad air.

This subject of ventilation has not yet reached the certain and satisfactory basis it deserves.

The painstaking and laborious experiments made by modern sanitarians reveal many startling facts. One of the most practical is, that ground air is ever present and charged with deadly organic impurities.

In the vicinity of all forms of decomposition it matters not what may be the plan or material of our homes; luxurious or simple, however perfect their plumbing or drainage, if the earth surrounding them is fouled by house waste of any description they are but huge vent-pipes for the ground air, carrying its load of virulence, to pass first into the cellars, then rapidly from floor to floor to the attics. This is strikingly true of modern houses, where the heating apparatus is placed in the cellar, a partial vacuum being so caused in said apartment; and the outside pressure being constant, keeps up an ever-ascending current.

During long and hard freezing periods the emanations through the soil are almost wholly arrested, and in winters with moderate freezing but great rainfall the air spaces in the soil are occupied by the water, and the air thus displaced is also pressed or drawn into the basements. This condition fully explains the great prevalence of so many types of fever in winter, such as typhus, typhoid, scarlatina, diphtheria, etc.

Life-long bereavements from the above have taught many intelligent people to keep absolutely nothing in their cellars that can decay or generate gases.

It will be unnecessary to go further and emphasize the necessity of sewer ventilation if this vital pre-requisite is not secured—viz., absolute purity of soil surrounding the dwellings.

The construction and ventilation of sewers are hoary with age.

That vast city of the Seven Hills and mightiest of military camps, from which marched out legions with eagles upon their banners to conquer the world, was so interlaced with sewers of all sizes that Pliny called it a city suspended in air rather than set upon the ground; and so well ventilated were they that Agrippa, when in charge of the public property, passed through them in a boat, receiving great praise as an efficient officer.

Two thousand six hundred years ago the Romans had effected the dexterous use of the two mighty weapons that could destroy what the military genius of the world for centuries tried to do and could not—viz., perfectly constructed sewers and copious