

GENERAL RESULTS

DEDUCED FROM

A COMPARISON OF THE SPECIES EXAMINED IN COMPILING
THE FOREGOING TABLES.

PLIOCENE PERIOD.

Italy, Sicily, the Morea, Perpignan, and the English Crag. The fossils of Perpignan and the Morea are, with the exception of three or four species, the same as those of Italy.

In Italy	No. of species.	569, of which 238 are still living, and 331 extinct (or <i>unknown</i>)		
Sicily	226	„	216	„ 10 „
The Crag	111	„	45	„ 66 „
	<u>906</u>			

No. of species common to Italy and Sicily	103
Italy and the Crag *	4
Sicily and the Crag	4
Italy, Sicily, and the Crag	<u>18</u>

129

No. of species proper to Sicily	65
to the Crag	23

By subtracting from the total number of species enumerated as belonging to the above localities	906
those species which are common to different localities	<u>129</u>

We find the real number of the species of this epoch to be . 777

The number of living analogues is 350, which is in the proportion of 49 in 100.

MIOCENE PERIOD.

Bordeaux, Dax, Touraine, Turin, Baden, Vienna, Moravia, Hungary, Cracovia, Volhynia, Podolia, Transylvania, Angers, and Ronca †.

The species of Moravia, Hungary, Cracovia, Volhynia, Podolia, and Transylvania, are the same, with a very few exceptions, as those of Vienna and Baden.

* The statement that there are only 4 species common to Italy and the Crag, may seem inconsistent with the fact that 18 are common to those places and to Sicily; but the reader will understand that there are only 4 species which are common to Italy and the Crag, and which are not also common to some *other Pliocene locality*. The same remark is applicable to similar statements in the sequel.

† Ronca may very probably belong to the Eocene epoch; but in this, as in respect to a few other localities mentioned in the tables, the number of analogues is too small to lead to certain conclusions.

	No. of species.				
Bordeaux and Dax	* 594		of which 136 are still living,		and 458 extinct.
Touraine	298	„ 68	„	230	„
Turin	97	„ 17	„	80	„
Vienna	124	„ 35	„	89	„
Baden	99	„ 26	„	73	„
Angers	166	„ 25	„	141	„
Ronca	40	„ 3	„	37	„

 1418

			No. of species.
Common to Bordeaux, Dax, Touraine			62
ib. ib. Turin			18
ib. ib. Vienna			23
ib. ib. Baden			13
ib. ib. Angers			8
ib. ib. Ronca			0
ib. ib. Touraine and Turin			12
ib. ib. Touraine and Vienna			17
ib. ib. Touraine and Baden			4
ib. ib. Touraine and Angers			14
ib. ib. Touraine and Ronca			0
ib. ib. Touraine, Turin and Vienna			8
ib. ib. Touraine, Turin and Angers			2
ib. ib. Touraine, Vienna and Angers			7
ib. ib. Turin and Vienna			6
ib. ib. Turin and Ronca			1
ib. ib. Baden and Angers			1
Touraine and Angers			10
Touraine and Turin			3
Touraine and Vienna			15
Touraine and Baden			2
Turin and Ronca			2
Vienna and Angers			2
Angers and Ronca			1
Touraine, Vienna and Baden			2
Touraine, Vienna, Angers and Baden			1
Bordeaux, Dax, Touraine, Turin, Vienna and Angers			3
ib. ib. ib. Turin, Vienna and Baden			3
ib. ib. ib. Vienna and Baden			14
ib. ib. ib. Vienna, Angers and Baden			2
Carried over			256

* There are at Bordeaux . . . 446 species
and at Dax . . . 473

 making a total of . . . 919

but from the great number of species common to the two localities there are, in reality, only 594 species, as above mentioned.

	No. of Species
Brought over	256
Common to Bordeaux, Dax, Touraine, Turin, Vienna, Angers & Baden	1
ib. ib. ib. Angers and Baden	2
ib. ib. Vienna and Baden	4
	263
By adding to the above 134 species which are common to the Miocene, and the two other epochs	134
	397
the total number of analogues will be found to be	397
By subtracting from the total number of species of the above localities	1418
those species which are common to different localities	397
	1021
We find the real number of species of this epoch to be	1021

The number of living analogues is 176, which is in the proportion of rather less than 18 in 100; the number of fossil analogues, after subtracting those which pass from the Miocene into both the Pliocene and Eocene epochs, is 168, which is very nearly in the same proportion.

The species which pass from the Miocene into the Pliocene period are in number 196, of which 114 are living, and 82 fossil, which is very nearly in the proportion of 20 in 100 of the total number of species of the latter epoch. Thus it is remarkable that there are 18 in 100 living analogues, 18 in 100 of analogous fossil species, and that 20 in 100 of these species pass from the Miocene to the Pliocene epoch.

The 114 living species, and the 82 fossil ones, which are common to the Miocene and Pliocene periods, are distributed, in the last-mentioned epoch, in the following manner:—

LIVING.	FOSSIL.
Crag 4	Crag 4
Italy 48	Sicily 1
Sicily 5	Italy 71
Sicily and Italy 46	Sicily and Italy 5
Sicily, Italy, and the Crag 11	Sicily and the Crag 1
114	82

The preceding distribution of species will show that Italy is represented in the Miocene period by 181 species, Sicily by 69, and the Crag by 20.

EOCENE PERIOD.

Paris, London, Valognes, Belgium, Castelgomberto, and Pauliac.

A small number of species only have been examined from Belgium, Pauliac, and Castelgomberto, but which agreed, with few exceptions, with species of the Paris basin. So also in regard to Valognes.

Number of species, Paris	. 1122	of which 38 are still living, and 1084 extinct (or unknown).
London	. 239	of which 12 are still living, and 227 extinct (or unknown).
Valognes	. 332	
Belgium	. 49	
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	1742	

By subtracting from these localities the number of analogous species 504

The real number of species of this epoch is 1238

The number of fossils of this period identified with living species is 42, which is to 1238 in the proportion of $3\frac{1}{4}$ in 100. The number of fossil species which pass from the Eocene into the two other periods is 46, that is to say, in nearly the same proportion as the living analogues. Among the fossil species, four only are common to the three epochs, which are the following:—

1 Dentalium coarctatum.	3 Bulimus terebellatus.
2 Tornatella inflata.	4 Corbula complanata.

The 42 other fossil species, which go no farther than the Miocene epoch, are distributed in the following manner:—

Bordeaux and Dax	. . . . .	17
Turin	. . . . .	3
Angers	. . . . .	2
Ronca	. . . . .	7
Bordeaux, Dax and Touraine	. . . . .	4
ib. ib. and Turin	. . . . .	1
ib. ib. Touraine and Angers	. . . . .	2
ib. ib. Turin, Vienna and Baden	. . . . .	1
ib. ib. Touraine, Turin, Vienna and Angers	. . . . .	1
ib. ib. Touraine, Vienna, Angers and Baden	1
Turin and Ronca	2
Angers and Ronca	1
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		42

Of the 42 living species, the following 13 are common to the three epochs,—

1 Dentalium entalis,	7 Murex tubifer,
2 ——— strangulatum,	8 Polymorphina gibba,
3 Fissurella græca,	9 Triloculina oblonga,
4 Bulla lignaria,	10 Lucina divaricata,
5 Rissoa cochlearella,	11 ——— gibbosula,
6 Murex fistulosus,	12 Isocardia cor,
	13 Nucula margaritacea.

Of the other species, 7 go no farther than the Miocene epoch, and are distributed in the following manner,—

Bordeaux and Dax	.	.	.	3
ib.	ib. and Baden	.	.	1
ib.	ib. and Touraine	.	.	1
ib.	ib. and Angers	.	.	1
ib.	ib. Touraine and Angers	.	.	1
				7

Total number of species in the three periods,—

In the Pliocene	.	.	777
In the Miocene	.	.	1021
In the Eocene	.	.	1238
			3036

From the above lists it will appear that there are 17 species which are common to the three epochs, and which may therefore be said to characterise the entire tertiary formations of Europe. Thirteen of them are species still living, while four are only known as fossil. There is not a single species common to the Pliocene and Eocene epochs which is not also found in the Miocene.

GEOGRAPHICAL DISTRIBUTION OF THE LIVING SPECIES WHICH
HAVE THEIR FOSSIL ANALOGUES.

Pliocene Epoch, 350 species.

In the Mediterranean	.	.	.	242	} Fossil in Sicily and Italy.
In the Indian Ocean	.	.	.	25	
At Senegal	.	.	.	5	
Common to the Mediterranean and Senegal	.	.	.	14	
————— and the African Ocean	.	.	.	8	
————— Indian Ocean and to Senegal	.	.	.	7	} Fossil in the Crag.
————— and to America	.	.	.	5	
In the Northern European Ocean	.	.	.	43	
——— Pacific Ocean	.	.	.	1	
				350	

*Miocene Epoch, 176 species, (100 species common to the
preceding epoch.)*

At Senegal, of which 13 are common to the Indian Ocean, and 12 to the Mediterranean	.	.	.	.	Species. 79
In the Mediterranean and Southern European Ocean, of which 10 are common to the Indian Ocean, and 12 to Senegal	.	.	.	.	86
In the Indian Ocean, 10 of which are common to the Southern European Ocean	.	.	.	.	29
Carried over	.	.	.	.	194

	Species.
Brought over	194
In the Equatorial Seas of America, 2 of which are common to the Indian Ocean	7
In the Pacific Ocean	2
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	203
Number common to different localities	27
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	176

*Eocene Epoch, 42 species, of which 26 are common to the
two preceding epochs.*

In the Mediterranean, 5 of which are common to India and New Holland	19
In the Indian Ocean	7
In New Holland	3
In Senegal	3
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	32
Of the fluviatile and terrestrial species, 5 are still living in Europe, 1 in the Philippine Islands, and 4 in Asia, Spain and Greece	10
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	42