

**THE ACCLIMATISATION  
OF THE SALMONIDAE  
AT THE ANTIPODES:  
ITS HISTORY AND RESULTS**

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The Acclimatisation of the Salmonidae at the Antipodes: Its History and Results by Arthur Nicols

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**ARTHUR NICOLS**

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SALMONIDÆ AT THE ANTIPODES:

*ITS HISTORY AND RESULTS.*

BY

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THE PUZZLE OF LIFE, AND HOW IT HAS BEEN PUT TOGETHER,"

AND

ZOOLOGICAL NOTES ON WILD AND DOMESTIC ANIMALS."

*Nusquam Magis quam in Minimis tota est Natura.*"—BACON.

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1882.

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## EARLY ENDEAVOURS TO ACCLIMATISE THE SALMON.



He who succeeded in making two blades of grass grow where but one grew before has been canonised as the greatest benefactor of mankind, but surely he who achieves the more difficult task of transplanting an animal from one hemisphere to the other, and peopling a barren river with a noble species of fish, should not pass unnoticed by his contemporaries and those who enter into the enjoyment of his labour.

The Australasian colonies fortunately possess acclimatisation societies directed by men of ability and energy, who have

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left nothing undone to establish in the New World the most desirable animal colonists from the old. If they have made a mistake here and there, and have introduced an unmitigated pest like the rabbit, they will one day find compensation in stalking the red deer and bringing the lordly salmon to grass among picturesque granitic hills, which may well recall to the eye of the sportsman many a wild scene in the highlands of bonnie Scotland or the softer glories of the Irish lakes. Long before the end of this century, when probably the ploughshare will have invaded the haunts of the red deer, and manufacturing "interests" and a growing population shall have driven the salmon in disgust from most of our rivers—when even Scandinavia's pure waters have been tainted by civilisation—the sportsman will take his rifle and rod, and seek among the fern-covered ranges of the Australian Alps and the deep tarns and pools of Tasmania and New Zealand, the noble quarry which has found a congenial home at the Antipodes.

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Whether this is an over-sanguine anticipation of the ultimate results of a brilliant exploit in acclimatisation, the reader will be enabled to judge from the account I propose to give of the introduction of the salmon family into the waters of the southern hemisphere, and the measure of success at present attained.

Why have not salmon found their way to the other hemisphere without man's intervention? we may reasonably ask. They range in the northern hemisphere between latitude  $45^{\circ}$  and  $75^{\circ}$ , though they may penetrate wherever there is open water to the northward, and the recent Arctic Expedition found a salmonoid permanently established at  $80^{\circ}$  N. latitude. Their physical constitution, then, is adapted to cool waters, and the zone of warm water occupying the tropics presents an impassable obstacle to southern migration. Moreover, they would never find, in their journey towards the south, any river the water of which would be low enough in temperature to permit the safe development of the ova, and it is there-



fore impossible that their migration could have been effected by easy stages. So far as is yet known, no true member of the family is indigenous to any region south of the equator, though a distant and obscure relative is found in some of the rivers of India, and another in New Zealand and the streams of the Falkland Islands, which has some characters common to the group, but is otherwise so distinct that no one ignorant of anatomy would suspect the remotest connection of these impostors with the noble stock. The colonists, however, have given local names to many animals on account of slight resemblances of colour or form to those they have been familiar with in the Old Country, and this has led to much confusion and misapprehension of the natural history of Australasian fauna which it is a hard task to correct.

We may say with truth, "*Illi robur et æs triplex circa pectus erat*" who first committed the fragile ova of the salmon to the truculent ocean, and essayed to transport them some sixteen thousand miles in the

hold of a ship, where they would be exposed to a temperature ranging between the freezing point and 95°, and in the space of three months would experience two winters and a tropical summer!

Looking back upon the dark past through the light of present experience, we are apt to lose sight of the steps which have led to knowledge. Thirty years ago there was positively no experience of the conditions under which it was possible to convey the ova of fish long distances. All was tentative, experimental, and uncertain; but we now regard as an interesting but not surprising feat the acclimatisation of fish from the West of America in the waters of the East, and *vice versa*, or the transport of sterlet from the Volga to Scotland.

It is easy enough to look with complacent satisfaction on a finished work, and think nothing of the care, perseverance, and intelligence expended in accomplishing it. Ask the director of the Brighton Aquarium how he brought the octopus, the porpoise, the herrings, the pipe-fish, and

other interesting objects safe into their glass compartments, and he will tell us of specially constructed tanks for railway transit, and innumerable devices for keeping the water cool and aerated, and watchful care and foresight in every step of the process. He will tell us of failures arising from the omission of some trifling detail, unforeseen or thought unimportant; but he can never tell us of lucky successes or triumphs easily won. Each detail was thought out beforehand, and carefully planned in accordance with all that was known of the necessary physical conditions, and even failure sometimes taught as much as success.

If, then, the vitality of a fish just taken from the sea needs such careful conservation, how much fostering should the embryonic vital spark in the ovum demand? Salmon ova are, perhaps, exceptionally delicate, as is well known to all breeders; but the writer must confess himself astonished at their extreme sensibility to injury when Mr. Robert Ramsbottom, of Clitheroe,