THE GEOGRAPHICAL DISTRIBUTION OF THE CHARADRIIDÆ

PLOVERS, SANDPIPERS, SNIPES.

SEEBOHM.

THE

GEOGRAPHICAL DISTRIBUTION

OF THE FAMILY

CHARADRIIDÆ,

OR THE

PLOVERS, SANDPIPERS, SNIPES,

AND THEIR ALLIES.

BY

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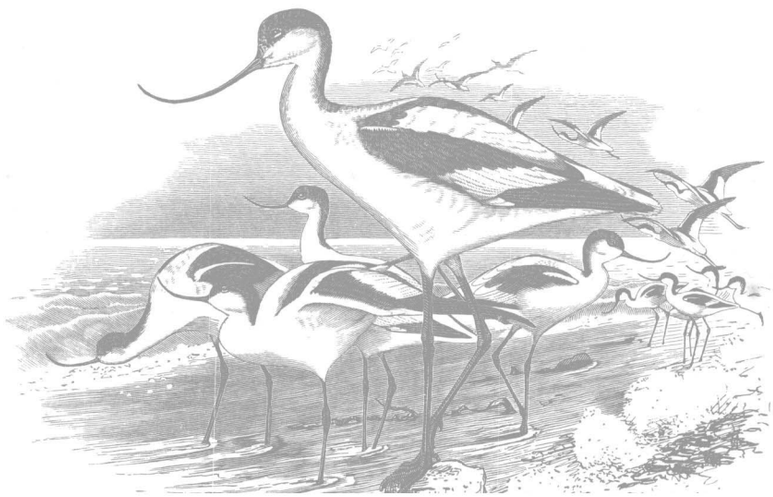


"Concerning the names of Birds we did not much trouble ourselves, there having been disputing enough about them long ago; but have for the most part followed *Gesner* and *Aldrovandus*, being unwilling to disturb what is settled, or dispossess Names that may for their use now plead prescription. For to what purpose is it eternally to wrangle about things, which certainly to determine is either absolutely impossible, or next door to it? Especially seeing if by immense labour it might at last be found out, by what Names every Species was known to the Ancients, the advantage that would thence accrue would not countervail the pains."

JOHN RAY, *in the Preface to the Ornithology of Francis Willughby.*
1678.

"In the difficult matters of synonymy and the orthography of generic names, I have been guided rather by general utility than by any fixed rules. When I have taken a whole family group from a modern author of repute, I have generally followed his nomenclature throughout. In other cases I use the names which are to be found in a majority of modern authors, rather than follow the strict rule of priority in adopting some newly discovered appellation of early date."

ALFRED RUSSEL WALLACE, *in the Preface to the 'Geographical Distribution of Animals.'*
1876.

"So far as regards specific names, I have throughout this work set the Rules of the British Association at defiance, being convinced that, so far as ornithology is concerned, they have done infinitely more harm than good. . . . . I have adopted a scheme which appears to me to be the most practical of any which have been suggested. It may not satisfy the requirements of poetical justice; but it is at least consistent with common sense. I adopt the specific name which has been *most used* by previous writers. It is not necessary for me to encumber my nomenclature with a third name, either to denote the species to which it refers, or to flatter the vanity of the author who described it; all my names are *auctorum plurimorum*."

HENRY SEEBOHM, *in the Introduction to 'A History of British Birds.'*
1883.

PREFACE.

About twenty years ago Mr. J. E. Harting began to collect information relating to the group of birds commonly called the Limicolæ, with the intention of publishing a monograph of them. In the course of his studies he contributed from time to time articles on this group of birds to 'The Ibis' and to the 'Proceedings' of the Zoological Society; but subsequently his attention drifted into other channels, until in 1884 he abandoned the idea of writing a monograph, and offered his collection of birds for sale.

I was then writing on the British species belonging to the group, which had always been an especial favourite of mine, and was glad of the opportunity of making my collection more complete. I therefore bought the Harting collection, which, with the Swinhoe collection, already in my Museum, and the Shelley collection of African Limicolæ since acquired, provided me with ample material for study as soon as the last part of the 'History of British Birds' had gone to press.

The result of this study is the present volume. Acting in accordance with the old proverb "*bis dat qui cito dat*," I determined not to write a monograph. What I had to say on the habits of these birds I had already said in the work referred to: on the other hand, I found that the study of all the species contained in the group threw quite a different light upon their geographical distribution, and enabled me to correct what appeared to be errors in their classification—their mutual relationship, in fact; so I determined to make these two subjects the theme of the book.

To reduce the cost I limited the Plates to those of birds which had either been badly figured or not figured at all, and limited the descriptions to little more than diagnoses. Only those who have tried to write a diagnosis of a species, to put down briefly but clearly the characters that apply to it, at all ages and seasons, and apply only to it, can appreciate the difficulties that have to be overcome. These difficulties are multiplied ten-fold when the diagnosis of a genus has to be written. The diagnosis must apply to every species in the genus and must be inapplicable to any species outside the genus. I cannot hope that all my diagnoses are perfect; I can only say that I have done my best to make them so.

The earlier writers on Ornithology, of whom we may accept Brisson and Linneus as typical examples, attempted to diagnose the genera of birds. To the best of their ability

they endeavoured to enumerate the characters which were sufficient to determine the genus, leaving out of the diagnosis other characters, which may be very interesting and very important, but are not absolutely necessary. Modern ornithologists belong to two schools; those belonging to the old school (than whom no better example can be found than Yarrell) simply enumerate the so-called structural characters, leaving the reader to find out for himself, if he can, which of them are diagnostic. No great fault can be found with this mode of procedure, except perhaps that it may be regarded as an attempt to "play for safety," which not unfrequently proves a great incentive to the use of strong language on the part of the bewildered but irascible student, who tries in vain to determine the genus of a strange bird.

Dresser, in his 'Birds of Europe,' has adopted a most original course: he has simply catalogued the structural characters of the type of each genus, without pointing out which of them are common to all the species, and which of them are exceptional; and, of the former, without a hint as to whether they are common to allied genera, or are diagnostic of the genus the type of which he is describing.

The new school of modern ornithologists (of whom Ridgway and Sharpe may be accepted as typical examples) boldly take the bull by the horns, and attempt to construct diagnostic keys to the genera. They may or may not be successful,—unfortunately many of these keys are lamentable failures, and will not turn in the lock; but all honour to the men who at least try to give definiteness to our knowledge.

My thanks are due to many ornithologists for much valuable assistance. Firstly, to Mr. Harting, for allowing me free access to his notes, and for permitting me to undertake, with his help, a work upon a group of birds with which his name has been so long associated; secondly, to Mr. Sharpe and the other officials of the British Museum, for giving me access to the National Collections, even during the interregnum and semi-chaos of the incorporation of the Hume collection; thirdly, to Messrs. Salvin and Godman, for the loan of rare birds from South America; and, fourthly, to the Smithsonian Institution in Washington, for the loan of equally rare birds from the Pacific Islands.

It only remains for me to explain the use which I have endeavoured to make of these and other materials to which I had access—to give, in short, a *résumé* of the points of view from which the Geographical Distribution of these birds may be studied.

After having written a book, to add a preface in order to tell the reader the conclusion at which it was intended to arrive, looks very much like the action of the legendary little boy who made a picture of a quadruped with long ears, and then wrote under it "This is a donkey." The little boy was not quite sure that a stranger would recognize his pictorial efforts—not that he had any doubt as to the intelligence of the stranger, but because he mistrusted his own powers of representation.

The object which I set before me was to try and discover the origin of the various

species of Plovers, Sandpipers, and Snipes. The first difficulty to be overcome was the determination of the species.

Most English ornithologists regard species as fixed quantities to be accepted or rejected according to circumstances. The hereditary conservatism of Englishmen has for the most part prevented them from realizing the important fact, that if the theory of evolution be true there must always be species in process of being evolved or differentiated. They have accepted the theory of evolution without accepting its inevitable consequences.

The hereditary progressive tendency of American thought has prevented the ornithologists of that country from committing the same blunder, and with them the recognition of subspecies is as much a matter of course as the admission that many species, even amongst those whose range of geographical distribution is very wide, show no tendency to split up into local races.

In this case no reasonable man can doubt that the Americans are perfectly right, and the majority of Englishmen hopelessly wrong.

The imperative necessity of recognizing subspecies immediately started the difficulty of their definition. To define the indefinite is no easy task, but the imperfection of the systems of nomenclature makes it absolutely necessary. I flatter myself that I have hit the happy medium by defining the difference between two forms to be *specific in all cases where they do not intergrade*, without making unnecessary inquiries as to the reasons why they do not do so; and to be only *subspecific in all cases where they do intergrade*, without making unnecessary inquiries as to how the intergradation is accomplished.

Having thus satisfactorily settled one boundary of subspecies, I decided to define the other boundary geographically. Whatever individual variation be found within the range of a species, if it be not also capable of being defined geographically I do not regard it of subspecific value.

My next difficulty was the definition and limitation of genera. The præ-Darwinian ornithologists supposed that species differed in colour, and genera in what they were pleased to call structural characters, such as the shape of the bill, feet, wings, tail, &c. Here it seems to me that both English and American ornithologists are for the most part wrong.

The post-Darwinian ornithologist must approach the subject from an entirely different standpoint. No *à priori* theories as to the respective generic value of colour and structure can be tolerated for a moment. It may be a matter of opinion as to how far a genus should be permitted to extend, but it is an inexorable law that *no species can be admitted into a genus unless it be nearer related to some one species in that genus than it is to any or every species outside*. Modern genera *must be genetic*, they must indicate *affinity*; but genera founded upon the shape of the bill or the number of the toes often associate birds together whose similarity is only one of *analogy*, where like causes have produced like

effects, in very distinct genealogical lines. I have found that in many cases the colour or the pattern of the colour of such parts of the plumage as are unaffected by age, sex, or season, and which is therefore presumably of ancient origin, is apparently of much greater value in ascertaining the relationship of many birds than the so-called structural characters, which are compelled by the laws of evolution to change with the changing habits or environment of the species.

In order to split up a species it must be dispersed. The chief causes of the dispersal of the ancestors of the Charadriidæ have probably been two Glacial Epochs. The Præ-Pliocene Glacial Epoch compelled the ancestral species to emigrate from its old home in the Polar Basin. It emigrated in various directions, and a score of parties were thus isolated in a score of localities, where they met with difficulties of various kinds. Emigration produced Isolation, and Isolation in more or less different environments caused Evolution to proceed on different lines, the final result being Differentiation.

Half the species thus differentiated remained in their new homes; but the other half followed the retreating cold to the old home in the Polar Basin, where most of them lived long enough to become again circumpolar. The Post-Pliocene Glacial Epoch again dispersed them with similar results, until finally many of them returned again to the Polar Basin, which, for the third time, became the great breeding-ground of the Charadriidæ.

The habits of Migration, originally formed for the purpose of seeking light, and strengthened by the experience of emigration, became an annual necessity when a semi-arctic condition of the Polar Basin again ensued, and culminated in the catastrophe which exterminated the Rhinoceros, the Hippopotamus, the Elephant, the Mammoth, and Palæolithic Man in the Palæarctic Region. This catastrophe I believe to have been the floods caused by the sudden melting of vast accumulations of snow, which must have begun when the climate became cold enough to allow the excessive rainfall of the later Pleistocene Age to accumulate in winter in the form of snow on the mountains, and which must have periodically occurred so long as the excessive rainfall continued. In Chapter VI. I have described the great annual catastrophe which, even with the present reduced rainfall, takes place in Siberia, and to a lesser extent in the valleys of the Nile and the Danube. This semi-arctic condition of the Polar Basin still exists, and the partial isolation thus produced has caused and is causing the production of subspecies.

To each of these great factors in the Differentiation of the species and subspecies of the Charadriidæ I have endeavoured to devote as much space as the limits of the work would allow. A large part of the book is occupied with details respecting each species or subspecies, the various names by which it has been called, the characters by which it may be recognized, its summer and winter range, and the probable course of the emigration of its ancestors.

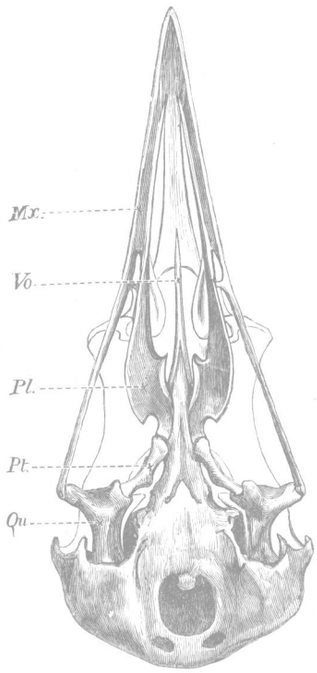
In discussing the Glacial Epoch I have endeavoured to place before the reader a clear idea of the main features of Croll's theory, which appears on the whole to be more plausible than any other that has hitherto been advanced. Croll lays great stress upon

the effect of changes in the elevation of land and in the direction of oceanic currents; and it seems very probable that the apparently simple action of the changes of the eccentricity of the earth's orbit has been greatly complicated by these and other causes.

It must, however, be left to competent Geologists to decide in what way the Glacial Epochs were caused. All that the ornithologist requires is a knowledge of the existence of two long-continued breaks in the continuity of bird-life in the Polar Basin, during which the birds were dispersed and isolated for a sufficient length of time to give them an opportunity of being modified to suit the various conditions of their temporary homes; so that the one species which lived on the shores of the Arctic Ocean before the Præ-Pliocene Glacial Epoch became differentiated into nearly two hundred species after the Post-Pliocene Glacial Epoch had passed away, and for at least the third time opened the gates of Paradise to the Charadriidæ.

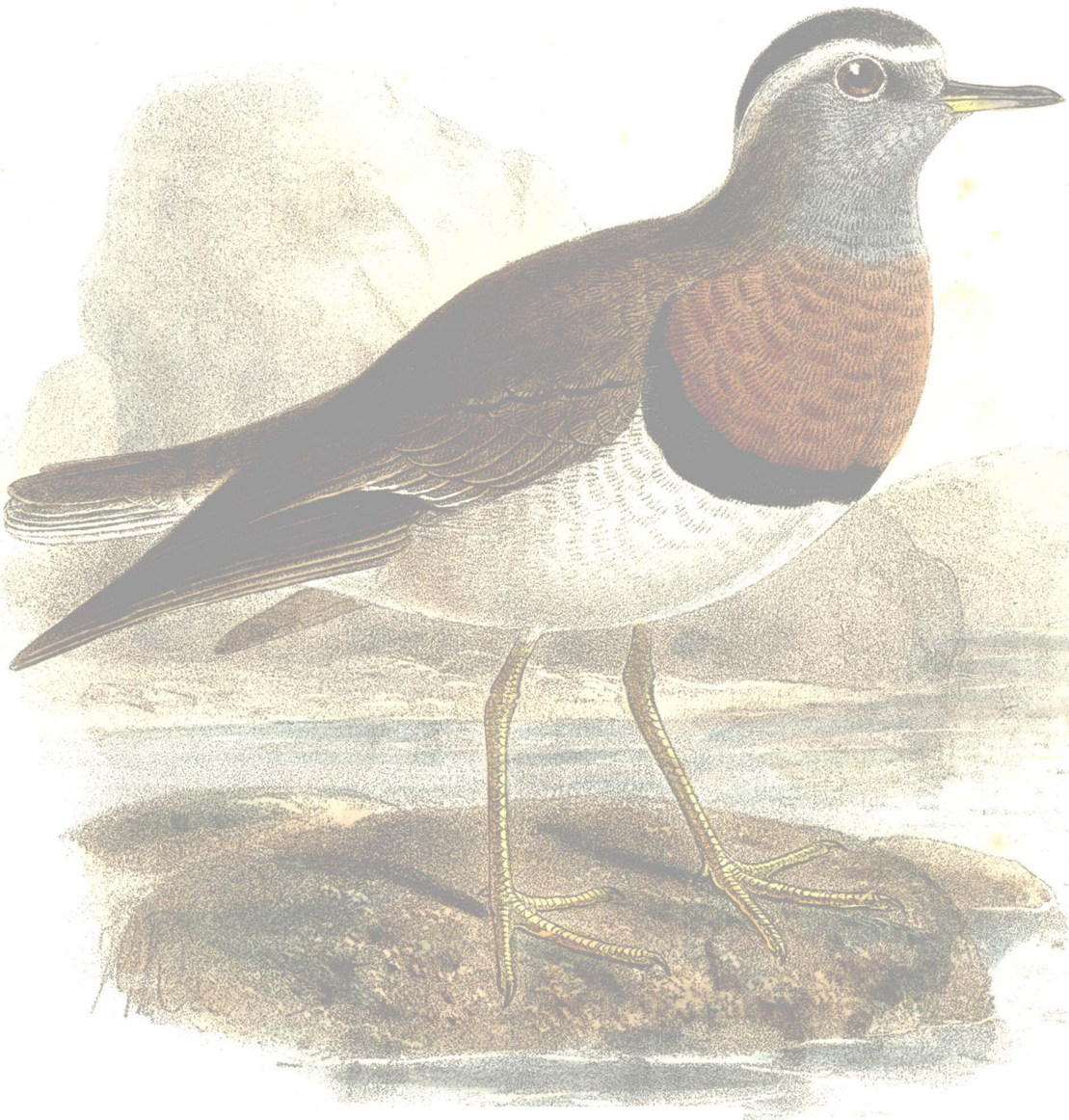
There seems to be a tendency amongst modern Biologists to modify the theory of Evolution as propounded by Darwin in two directions. One party, headed by Weismann, desires to eliminate the effects of Use and Disuse; and another, of whom Romanes is the exponent, wishes to minimize the importance of Isolation. In each case it is thought that too much importance was attached by Darwin to the point under consideration. I think exactly the opposite. I think that the relative importance of the hereditary effects of Use or Disuse, and the necessary part which Isolation plays in the Differentiation of species, appear to be much underestimated by Darwin, and I have endeavoured to bring some evidence to show that this is the case.

Finally, I beg to commend my book with all its faults, which I am sure are many, and with all its blunders, which I hope are few, to the careful consideration of ornithologists. It possesses at least the merit of originality, and (if an author may be permitted to pass sentence on his own work) it does not quite deserve the critical remarks once made to a writer: "Your book is both good and new; but that part which is good is not new, and that part which is new is not good."



Under view of the skull of the Lapwing (*Vanellus cristatus*).

Mx. The Maxilla. *Vo.* The Vomer. *Pl.* The Palatine bone. *Qu.* The Quadrate bone.



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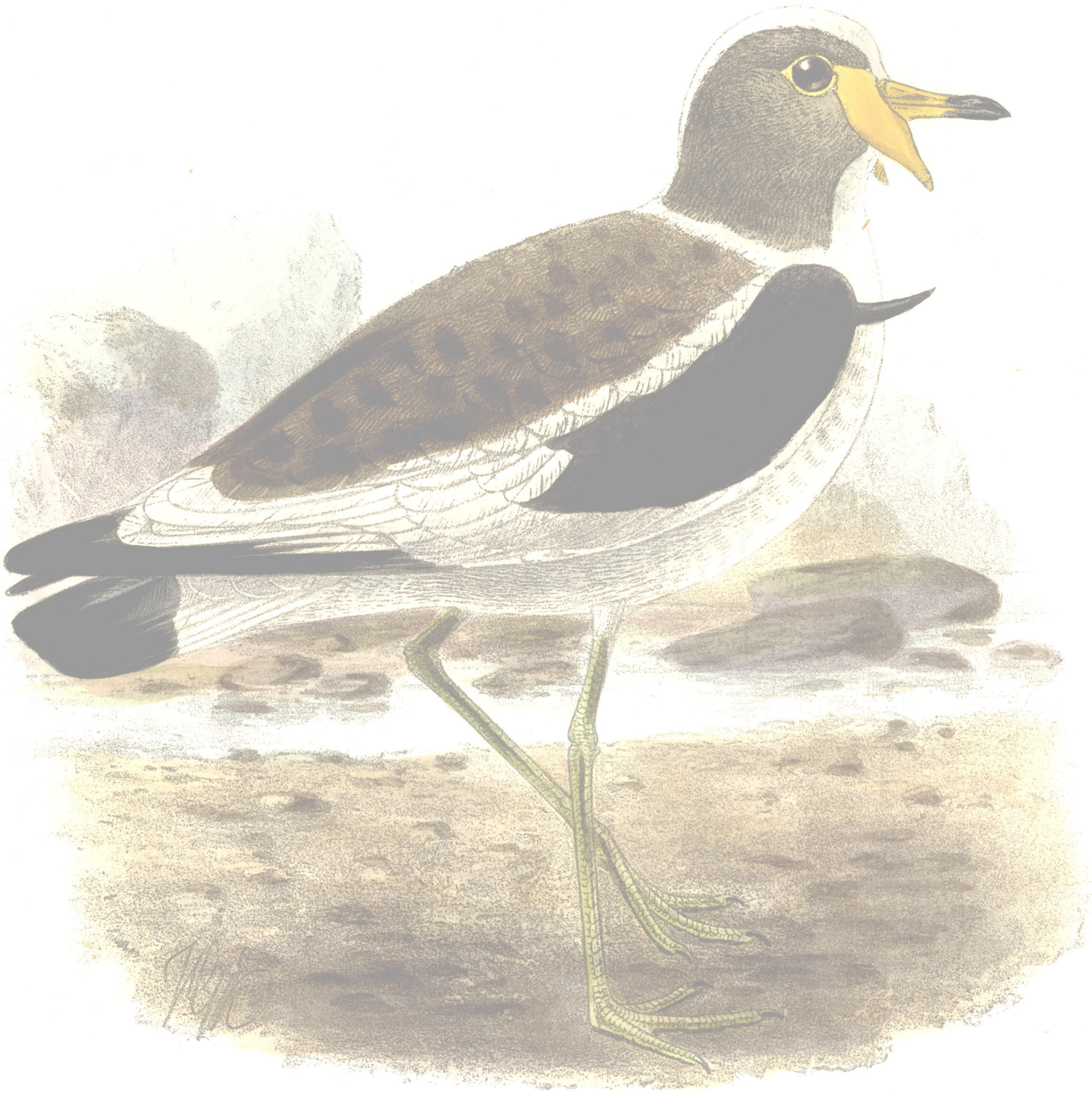
CHARADRIUS RUBECOLA

CHILIAN DOTTEREL.



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J.G.Keulemans lith.

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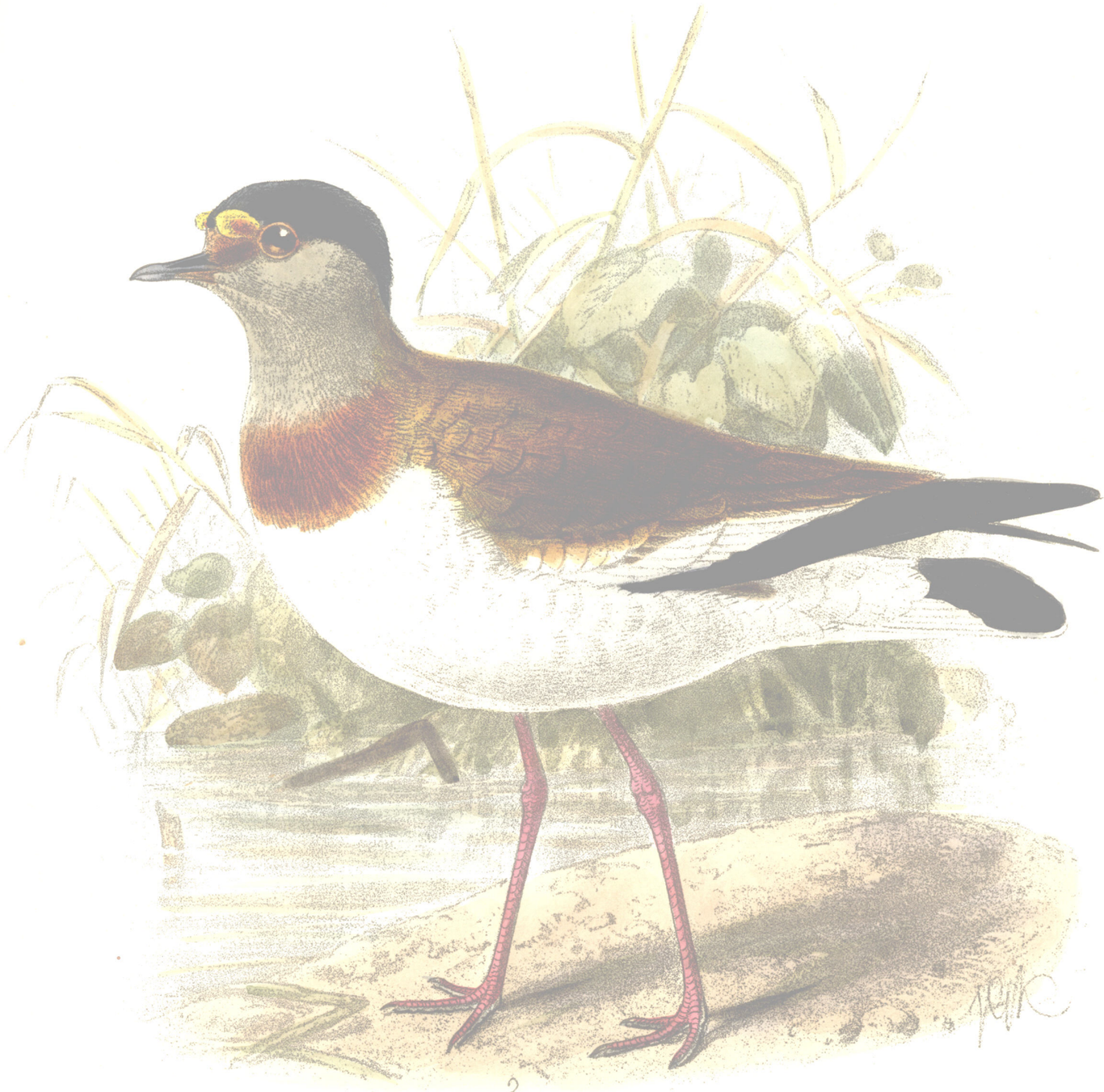
LOBIVANELLUS ALBICEPS.

WHITE-CROWNED WATTLED-LAPWING.



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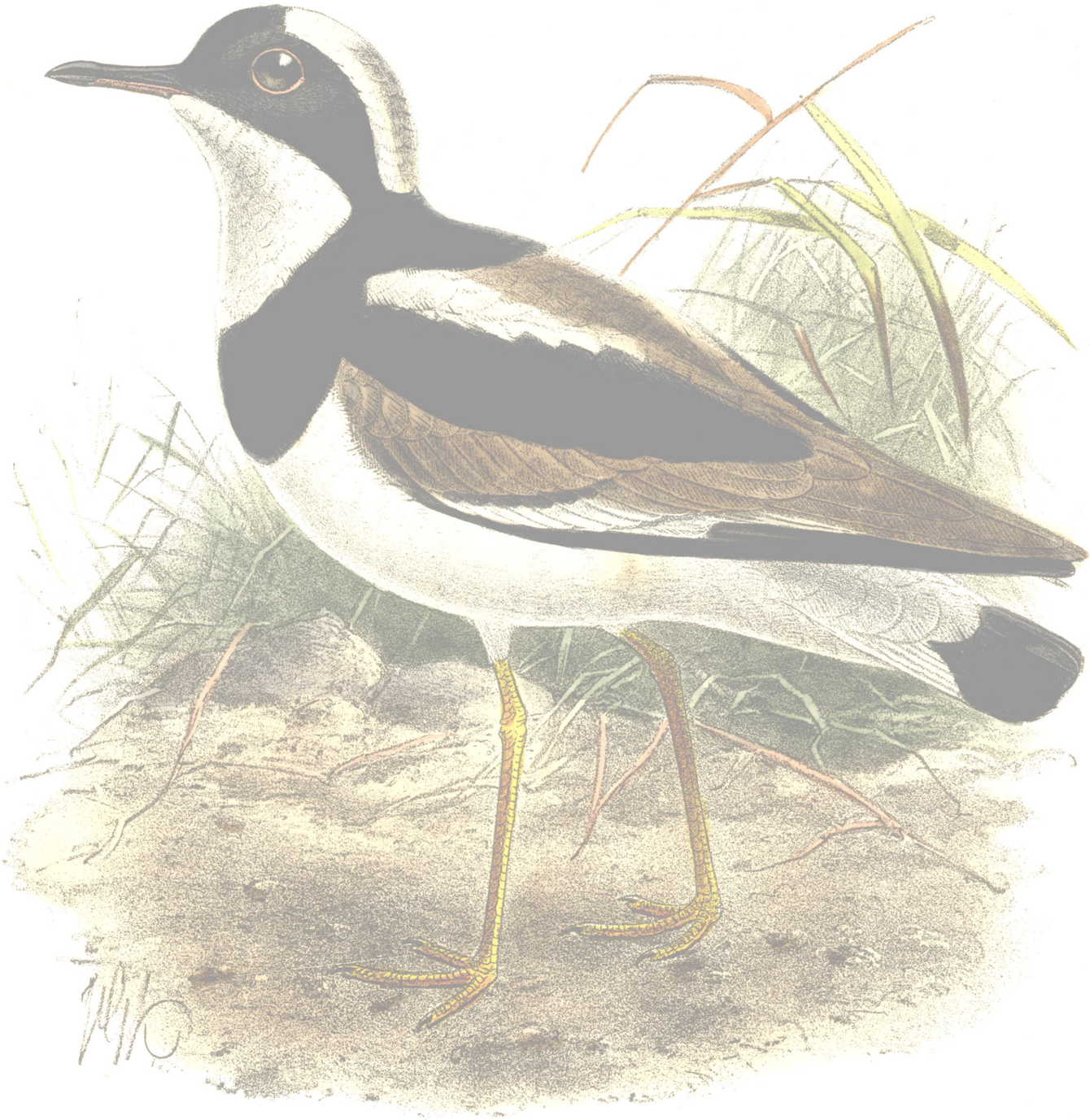
LOBIVANELLUS SUPERCILIOSUS.

BOHM'S WATTLED-LAPWING.



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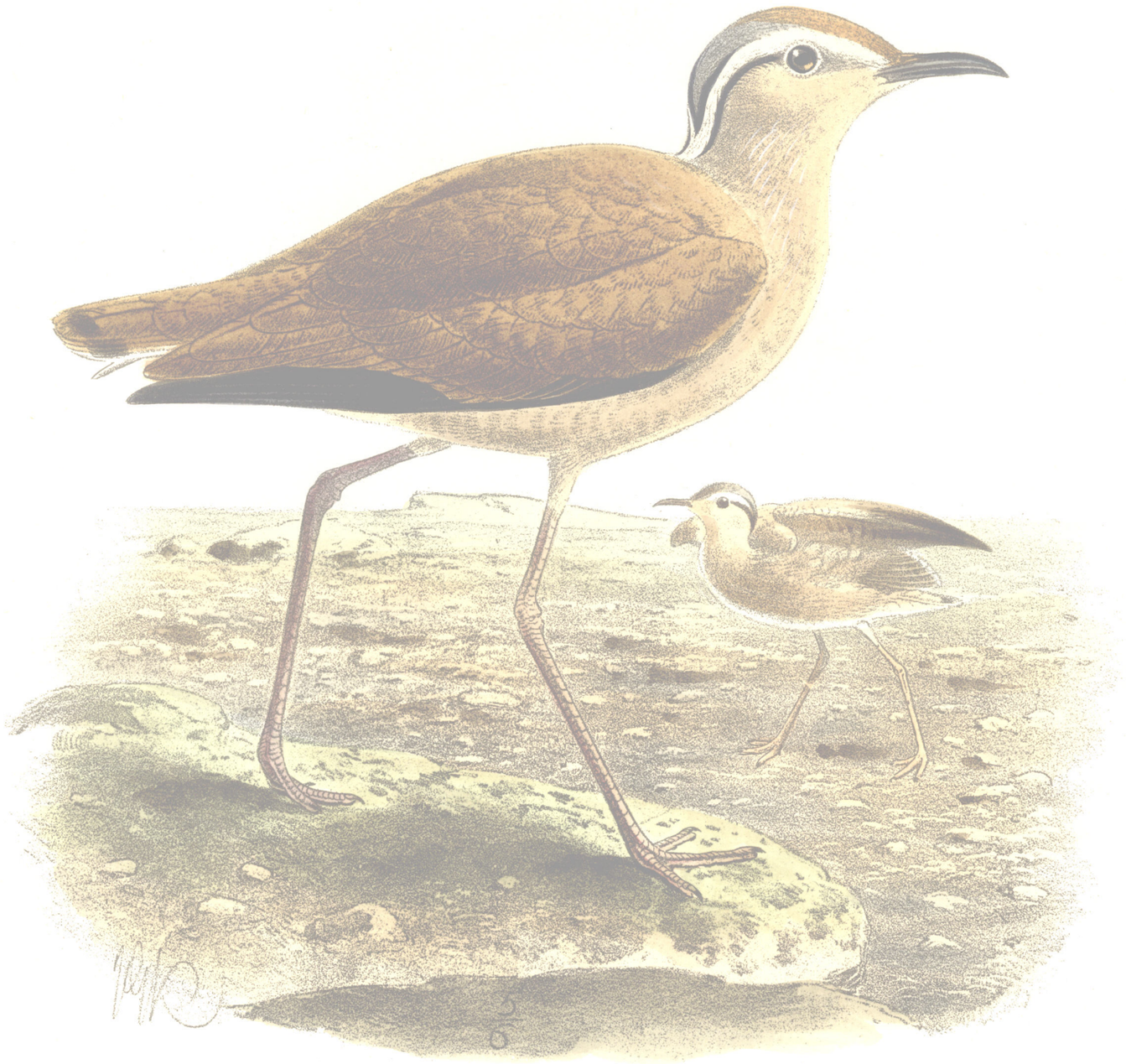
VANELLUS CAYANUS.

THREE-TOED CAYENNE LAPWING



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CURSORIUS SOMALENSIS.

SOMALI COURSER.

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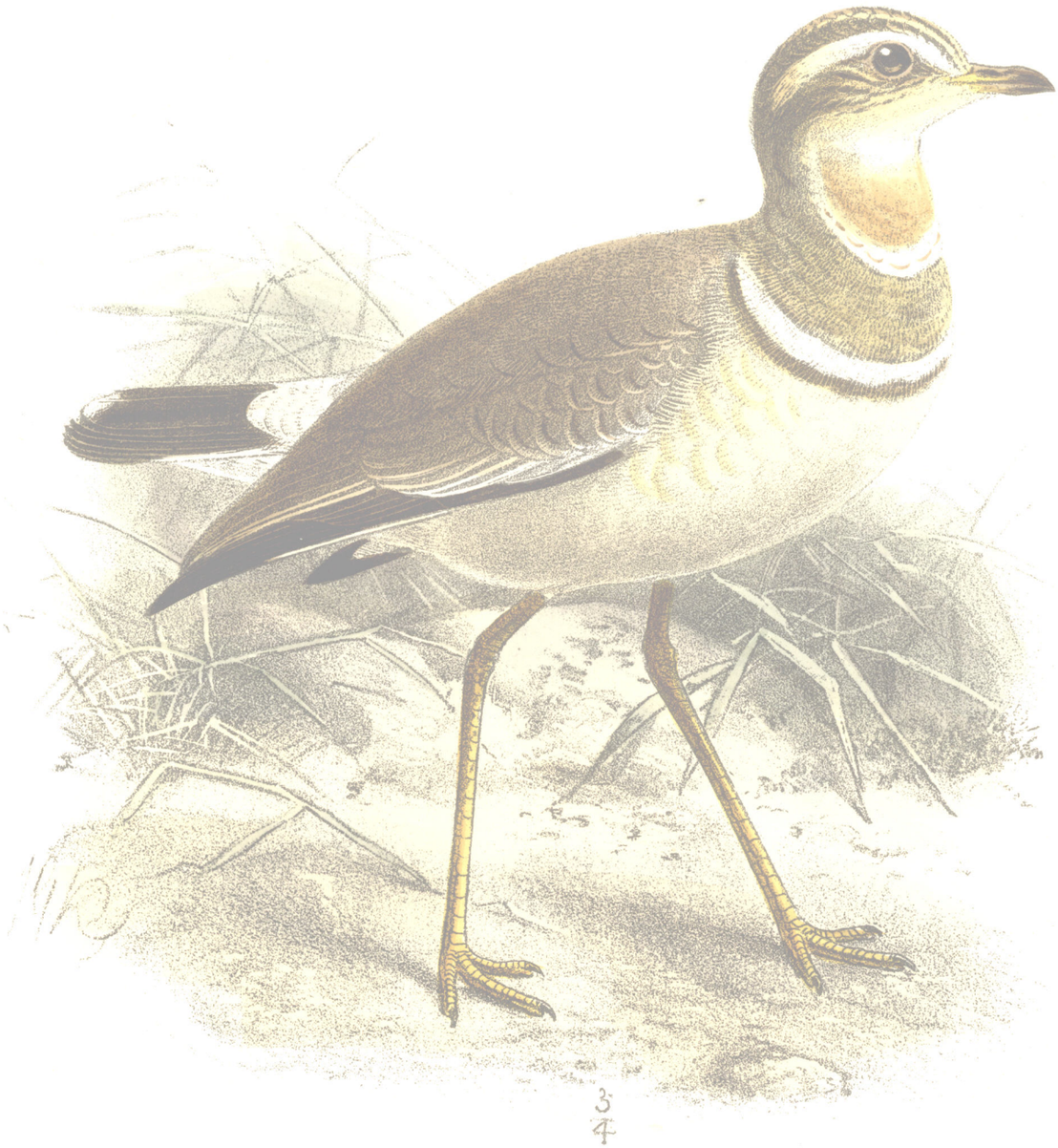
CURSORIUS CINCTUS.

HEUGLIN'S COURSER.



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J. G. Keulemans lith.

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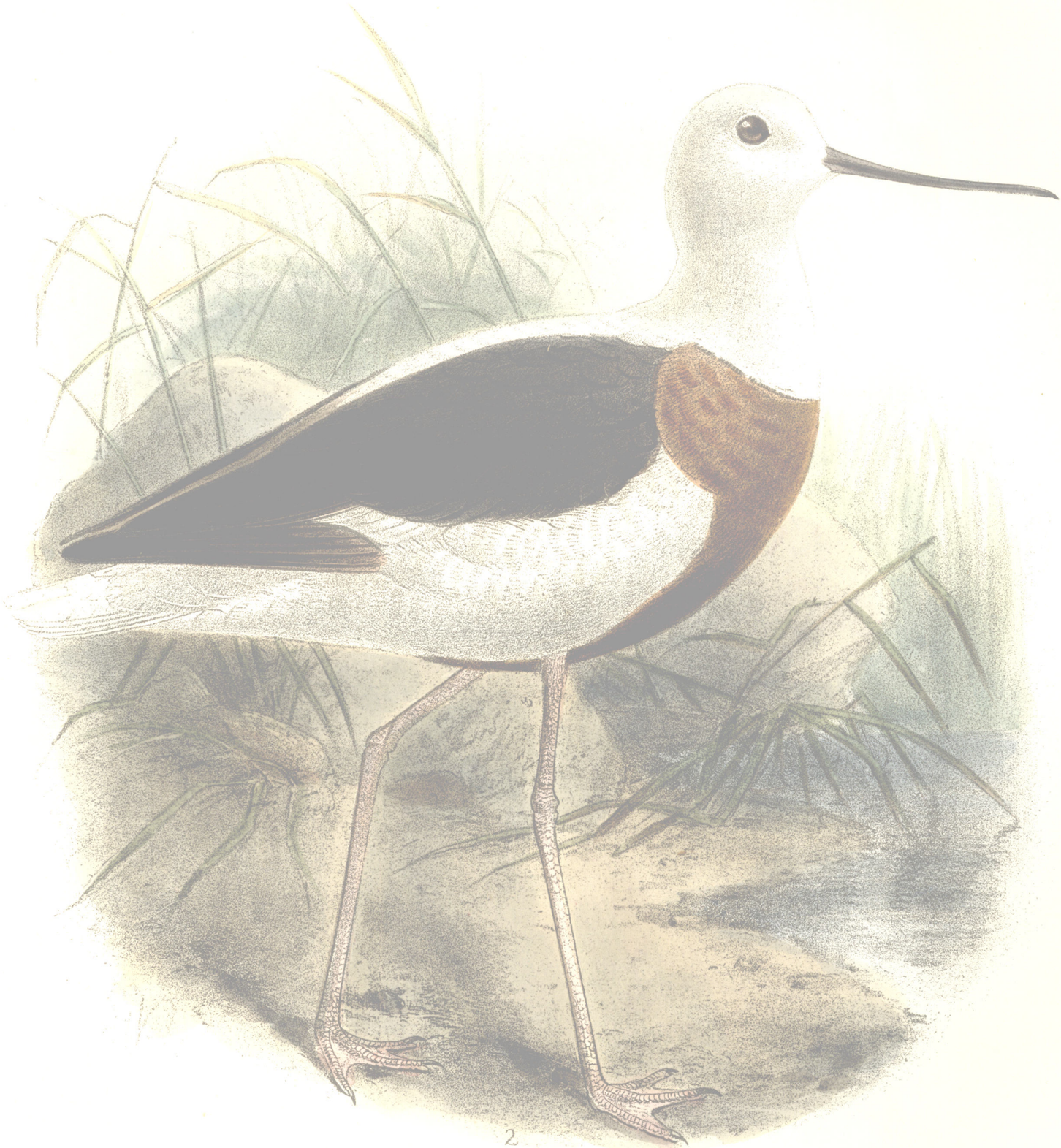
CURSORIUS BITORQUATUS

JERDON'S COURSER.



J. G. Keulemans lith.

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Hanhart, imp.

HIMANTOPUS PECTORALIS.

BANDED STILT.