Finch & Co

RARE DOUBLE ROLL OF PACIFIC SOLOMON ISLANDS, SANTA CRUZ, RED FEATHER CURRENCY, 'TEVAU'

A RARE DOUBLE ROLL OF PACIFIC SOLOMON ISLANDS, SANTA CRUZ, RED FEATHER CURRENCY, 'TEVAU'
GOOD ORIGINAL CONDITION. PLANT FIBRE, BARK STRIPS, RED BIRD FEATHERS, SMALL SHELLS, SHARKS SKIN, GLASS BEADS
19TH CENTURY
SIZE: 41CM HIGH, 79CM WIDE, 6CM DEEP – 16 INS HIGH, 31 INS WIDE, 2¼ INS DEEP

LITERATURE

THESE REMARKABLE FORMS OF PACIFIC ISLAND CURRENCY ARE MADE OF ELABORATE COILS OF RED FEATHERS TAKEN FROM THE SCARLET HONEY-EATER (MYZOMELA CARDINALIS) AND WERE THE BASIS FOR A TRADING NETWORK BETWEEN THE NEIGHBOURING ISLANDS OF THE SOLOMONS. IN POLYNESIAN SOCIETIES THE COLOUR RED WAS SIGNIFICANT, IT WAS THE COLOUR OF THE GODS, USED FOR THE PERSONAL ADORNMENT OF CHIEFS WHO BELIEVED THEY WERE THE EMBODIMENT OF THE GODS. THE ONLY SOURCE OF A PERMANENT BRIGHT RED COLOUR CAME FROM THE FEATHERS OF CERTAIN BIRDS AND PARTICULARLY BRILLIANT RED FEATHERS ARE FOUND ON THE SCARLET HONEYEATER.

TODAY WITH MODERN LIFE DOMINATED BY COINS, BANKNOTES, CHEQUES AND CREDIT CARDS IT IS DIFFICULT TO UNDERSTAND HOW SOCIETIES COULD FUNCTION WITHOUT CONVENTIONAL MONEY. HOWEVER, ALTERNATIVE FORMS OF CURRENCY WERE ONCE WIDESPREAD THROUGHOUT THE WORLD. ROUTINE DAILY TRANSACTIONS RELIED ON BARTER; A FISHERMAN WOULD EXCHANGE A FEW FISH WITH A FARMER FOR SOME OF HIS CROP, BUT BARTERING SYSTEMS DON'T WORK WHEN YOU WANT TO BUY IN QUANTITY OR OBTAIN SOMETHING OF EXCEPTIONAL VALUE. THUS, IN THE SOLOMON ISLANDS THE PRECIOUS ROLLS OF RED FEATHERS ACTED LIKE A PILE OF BANKNOTES OR A LARGE CHEQUE, ENABLING PIGS TO BE PURCHASED FOR A FEAST DAY, OR FOR A WIFE TO BE BOUGHT, WITH THE WHOLE COMMUNITY RECOGNISING THESE EXCHANGES AS BEING OF GREAT AND PERMANENT VALUE.

AS BOTH METAL ORES AND FOSSIL COAL DEPOSITS ARE NOT FOUND IN THE PACIFIC A CURRENCY BASED ON METAL COINS DID NOT DEVELOP. ALTERNATIVE CURRENCIES BASED ON OBJECTS MADE FROM SCARCE NATURAL RESOURCES THAT TOOK A GREAT DEAL OF TIME AND SKILL TO MAKE WERE DEVELOPED, OF WHICH THE SANTA CRUZ RED FEATHERS MONEY IS THE MOST INTRICATE AND SPECTACULAR.

ARTICLE:

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THE IMPACT OF THE SANTA CRUZ RED FEATHER CURRENCY ON THE POPULATION OF THE SCARLET HONEY EATER MYZOMELA CARDINALIS

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OUR LIVES ARE SO DOMINATED BY COINS, BANKNOTES AND CREDIT CARDS THAT IT IS DIFFICULT FOR US TO VISUALISE HOW SOCIETIES CAN FUNCTION WITHOUT CONVENTIONAL MONEY. BUT ALL OVER THE WORLD ALTERNATIVE FORMS OF CURRENCY WERE ONCE WIDESPREAD (QUIGGIN 1949, OPITZ, 2000). ONE OF THE MOST REMARKABLE OF THESE DEVELOPED ON THE PACIFIC ISLANDS OF SANTA CRUZ, BASED ON ELABORATE COILS OF RED FEATHERS TAKEN FROM THE SCARLET HONEY EATER MYZOMELA CARDINALIS (FIGURE 1). THIS FORM OF CURRENCY WAS THE CENTRE OF A TRADING NETWORK BETWEEN NEIGHBOURING ISLANDS (DAVENPORT 1962). IT IS THE ONLY CASE KNOWN WHERE A WHOLE CURRENCY SYSTEM WAS BASED ON THE EXPLOITATION OF A WILD BIRD POPULATION, AND TO SUSTAIN THIS CURRENCY MUST HAVE REQUIRED KILLING A CONSIDERABLE NUMBER OF BIRDS EACH YEAR. THE AIM OF THIS NOTE IS TO SPECULATE ON THE POSSIBLE SCALE OF THE HUNTING PRESSURE EXERTED ON THE BIRD POPULATION TO SUPPORT THIS MONEY SUPPLY.

THE REMOTE SANTA CRUZ AND ASSOCIATED ISLANDS ARE PART OF THE SOLOMONS ISLANDS GROUP, TO THE SOUTH EAST OF NEW GUINEA. THEIR RED FEATHER MONEY WAS ONLY ONE OF MANY EARLY MONEY SYSTEMS TO DEVELOP IN THE PACIFIC CULTURES (QUIGGIN 1949). SUCH SOCIETIES RELIED ON BARTER FOR MOST ROUTINE TRANSACTIONS. A FISHERMAN WOULD EXCHANGE A FEW FISH WITH A FARMER FOR SOME OF HIS TARO, AND SO A CHAIN OF EXCHANGES ALLOWED PEOPLE TO OBTAIN THEIR DAILY NEEDS. BUT BARTERING SYSTEMS CANNOT FUNCTION WHEN YOU NEED TO TRADE IN LARGE QUANTITIES OF PRODUCE, OR BUY SOMETHING OF EXCEPTIONAL VALUE. IN SANTA CRUZ THE SMALL, OUTER REEF ISLANDS HAD SANDY, INFERTILE SOILS THAT MADE THEM UNSUITABLE FOR GROWING ROOT CROPS, BUT HAD A COMPARATIVELY HIGH HUMAN POPULATION WHO MAINLY RELIED ON FISHING AND REARING PIGS. THE MAIN SANTA

CRUZ ISLAND WAS COMPARATIVELY LARGE, UNDER POPULATED, BUT WITH FERTILE SOIL SUITABLE FOR GROWING THE STAPLE CROPS OF TARO ROOT AND YAMS. RED-FEATHER MONEY WAS THE BASIS FOR THE TRADE IN THESE ESSENTIAL COMMODITIES BETWEEN ISLAND COMMUNITIES (DAVENPORT 1962). MONEY WAS ALSO NEEDED TO PAY FOR EXPENSIVE ITEMS, PERHAPS TO HIRE SOMEONE TO CARVE A CANOE, OBTAIN A PIG FOR A FEAST DAY, OR TO BUY A WIFE. THESE PURCHASES NEEDED SOME EXCHANGE OF GOODS THAT WERE RECOGNISED BY THE WHOLE COMMUNITY AS OF GREAT AND PERMANENT VALUE. WESTERN SOCIETIES, FROM EARLY TIMES, BASED THEIR CURRENCY ON RARE METAL COINS. BUT THE PACIFIC CULTURES MOSTLY DEVELOPED ON SMALL ISLANDS OF VOLCANIC OR CORAL ROCKS, WHICH LACKED METAL ORES. COAL AND OTHER FUELS THAT COULD GENERATE TEMPERATURES HIGH ENOUGH TO SMELT METAL WERE ALSO ABSENT. INSTEAD, SOCIETIES HAD TO DEVELOP AN ALTERNATIVE CURRENCY OF RECOGNISED WORTH. THESE USUALLY RELIED ON OBJECTS MADE FROM RELATIVELY SCARCE NATURAL RESOURCES, TOGETHER WITH THE DISPLAY OF CONSIDERABLE SKILL, TIME AND CRAFT FOR THEIR MANUFACTURE.

A WIDE RANGE OF SHELL, STONE AND OTHER CURRENCIES DEVELOPED (QUIGGIN 1949) OF WHICH THE SANTA CRUZ FEATHER MONEY IS THE MOST SPECTACULAR AND INTRICATE. IN POLYNESIAN SOCIETIES THE COLOUR RED WAS CONSIDERED ESPECIALLY SIGNIFICANT, AS WERE FEATHERS (KAEPPLER 2008). RED WAS THE COLOUR OF THE GODS, AND CONSEQUENTLY WAS USED FOR PERSONAL ADORNMENT BY THE CHIEFS, WHO WERE THE EMBODIMENT OF THE GODS (BEASLEY 1936). HOWEVER, NATURAL SOURCES OF RED MATERIAL WERE RARE IN THE ENVIRONMENT. THE RED PIGMENTS OF MARINE MOLLUSC SHELLS FADE RAPIDLY IN SUNLIGHT, AND THE ONLY SOURCE OF A PERMANENT, VIBRANT RED COLOUR CAME FROM THE FEATHERS OF CERTAIN BIRDS. PARTICULARLY BRILLIANT RED FEATHERS ARE FOUND ON THE SCARLET HONEY EATER (FIGURE 2), A SPECIES WITH A WIDE DISTRIBUTION OVER THE PACIFIC ISLANDS, AND THE SANTA CRUZ FORM M.C. SANCTAECRUCIS HAS MORE SCARLET IN THE PLUMAGE THAN MOST OTHER SUBSPECIES – MAYR (1945) REPORTS THAT IN MALES ONLY THE WINGS, TAIL AND LOWER ABDOMEN ARE BLACK AND TOTALLY LACK ANY RED FEATHERS, ALTHOUGH MY EXAMINATION OF THE SIX SANTA CRUZ SKINS IN THE BRITISH MUSEUM SUGGEST THAT THE EXTENT OF RED FEATHERING MAY VARY CONSIDERABLY BETWEEN INDIVIDUALS, PERHAPS DEPENDING ON THE AGE OF THE BIRD. MAYR (1945) REPORTS THAT FEMALES ARE SOOTY OLIVE IN COLOUR, WITH DULL SCARLET FEATHERS USUALLY CONFINED TO THE RUMP.

SANTA CRUZ IS STILL A RELATIVELY REMOTE ISLAND GROUP. THE ORIGINAL MELANESIAN AND POLYNESIAN INHABITANTS HAD A FIERCE REPUTATION, AND RESISTED EARLY EUROPEAN SETTLEMENT, AND IT WAS PROBABLY NOT UNTIL THE TIMBER INDUSTRY BECAME ESTABLISHED IN THE 1930'S AND THE SECOND WORLD WAR THAT WESTERN INFLUENCES BECAME FIRMLY ESTABLISHED. THE FIRST PUBLISHED ACCOUNT OF THEIR CURRENCY WAS IN 1891 BY CODRINGTON. HOWEVER, THIS CONTAINED MANY ERRORS THAT WERE COPIED BY SUBSEQUENT AUTHORS. FOR EXAMPLE, HE STATED THAT THE SOURCE OF THE FEATHERS WAS THE LORIKEET TRICHOGLOSSUS MASSENA (NOW KNOWN AS T. HAEMATODUS), A MISTAKE THAT WAS ONLY CORRECTED BY BEASLEY IN 1934. BEASLEY'S (1934) ACCOUNT REMAINS ONE OF THE MOST DETAILED AND INFORMATIVE RECORDS, ALTHOUGH HE NEVER VISITED SANTA CRUZ. HE RELIED FOR HIS INFORMATION ON A CORRESPONDENT ON THE ISLAND, MR. F.L. JONES. TWO OTHER AUTHORS GIVE GOOD ACCOUNTS, WILLIAM DAVENPORT (1962) WHO WORKED ON THE ISLANDS AND GERD KOCH (1971). THEIR ACCOUNTS ARE LARGELY ANECDOTAL, AND IT IS NOT CLEAR TO WHAT EXTENT THE INFORMATION THEY CONTAIN WAS BASED ON ORIGINAL FIELD OBSERVATIONS, FROM QUESTIONING LOCAL PEOPLE WHO HAD BEEN INVOLVED IN THE FEATHER MONEY TRADE IN THEIR YOUTH, OR TAKEN FROM CODRINGTON OR BEASLEY'S EARLIER ACCOUNTS.

THE FEATHER ROLLS, WHICH CAN BE UP TO 10 METRES IN LENGTH, WERE NOT WORN, DISPLAYED OR USED IN ANY DECORATIVE WAY WHATSOEVER. THEY WERE STORED, WRAPPED IN PALM LEAVES OR TRADE CLOTH, ON SHELVES IN THE ROOFS OF HOUSES, WHERE THE SMOKE FROM FIRES PROBABLY DETERRED INSECT DETERIORATION. IN SOME CASES SPECIAL HUTS WERE CONSTRUCTED FOR THEIR STORAGE. THE FEATHER MONEY WAS ONLY MANUFACTURED ON SANTA CRUZ, AND WAS THEN TRADED WITH THE OTHER ISLANDS (DAVENPORT (1962). BEASLEY (1934), DAVENPORT (1962) AND KOCH (1971) ALL DESCRIBE HOW THREE SPECIALISTS WERE NEEDED TO MANUFACTURE EACH ROLL. THESE SKILLS WERE RESTRICTED TO A FEW FAMILIES, WERE PASSED FROM FATHER TO SON DOWN THE GENERATIONS, TOGETHER WITH VARIOUS INCANTATIONS AND CHANTS THAT WERE USED DURING THEIR MANUFACTURE TO COMMUNICATE WITH THE SPIRITS AND ENDOW THE CURRENCY WITH SPECIAL POWER. FIRSTLY A BIRD CATCHER

CAUGHT THE BIRDS, USUALLY USING STICKY LATEX FROM THE SAP OF THE PAPER MULBERRY TREE BROUSSONETIA PAPYRIFERA. THIS WAS SMEARED ONTO A PROMINENT PERCH, TO WHICH BIRDS WERE ATTRACTED BY EITHER A TETHERED LIVE BIRD, DEAD DECOY OR AN IMITATION OF THEIR CALL MADE BY A FLUTE PLAYED BY THE HUNTER (KOCH 1971). BIRDS WERE CAUGHT ON THE OUTER ISLANDS, AS WELL AS ON SANTA CRUZ ITSELF. BEASLEY (1934) REPORTS THAT A HUNTER COULD USUALLY CAPTURE 5 TO 10 BIRDS IN A DAY, UP TO 20 ON A GOOD DAY. SO PRESUMABLY THE BIRDS WERE BOTH RELATIVELY ABUNDANT AND EASILY LURED. THE FEATHERS WERE THEN PLUCKED. BEASLEY (1934) SAYS THE BIRDS WERE KILLED, BECAUSE IF THEY HAD BEEN RELEASED THEY WERE UNLIKELY TO BE CAUGHT BY THE SAME TECHNIQUE AGAIN. BOTH DAVENPORT AND KOCH REPORT THAT THE BIRDS WERE RELEASED AFTER THEIR FEATHERS HAD BEEN PLUCKED. HOWEVER, DAVENPORT CONSIDERS THAT THEY WOULD HAVE DIED LATER, AND IT IS INDEED EXTREMELY UNLIKELY THAT BIRDS COULD HAVE SURVIVED SUCH EXTENSIVE DE-FEATHERING, WHICH WOULD HAVE LEFT THEM VIRTUALLY BALD. I ASSUME THEY WERE EITHER KILLED, OR DIED LATER. THE FEATHERS WERE THEN PACKED IN COCONUT SHELLS, THE FEATHERS FROM 10 BIRDS IN EACH SHELL BEING REGARDED AS A TRADING UNIT BY THE HUNTER (KOCH 1971), AND IF THEY HAD BEEN COLLECTED ON ONE OF THE OUTER ISLANDS WOULD HAVE THEN BEEN SENT TO SANTA CRUZ FOR THE SECOND STAGE OF MANUFACTURE. A SECOND CRAFTSMAN THEN CONSTRUCTED A SERIES OF SMALL PLATELETS BASED ON THE FEATHERS OF THE GREY PACIFIC PIGEON DUCULA PACIFICA. THE PIGEONS WERE USUALLY SHOT BY BOW AND ARROW (AND PROBABLY THEN EATEN). THE PIGEONS ARE DULL IN PLUMAGE, BUT HAVE STIFF, GREY FLIGHT FEATHERS THAT COULD BE GLUED TOGETHER USING THE STICKY SAP FROM THE MULBERRY TREE TO FORM A FLEXIBLE, PLASTIC-LIKE PAD. EACH SUCH PLATELET, MADE OF FEATHERS AND GLUE, WAS ABOUT 6 CM WIDE AND 3 CM LONG, AND WAS CONSTRUCTED ON A WOODEN TEMPLATE SO AS TO MAINTAIN A STANDARD SIZE AND SHAPE. THE FINAL STAGE OF MANUFACTURE WAS WHEN A 1 CM BAND OF THE SMALL RED HONEY EATER FEATHERS WERE GLUED ALONG ONE OF THE LONG EDGES, SO THAT THEY PROTRUDED BEYOND THE EDGE OF THE PLATE TO FORM A RED FRINGE. THESE PLATELETS WERE CONSTRUCTED VERY CAREFULLY. THE FEATHERS WERE SELECTED FOR CONSISTENT SIZE AND COLOUR, AND SPACED UNIFORMLY. BEASLEY (1936) ALONE REPORTS THAT ANOTHER CRAFTSMAN WAS INVOLVED, WHO FINISHED THE PLATES BY ADDING A SECOND ROW OF SMALL RED FEATHERS TAKEN FROM THE HEAD OF THE BIRDS. NONE OF THE ROLLS THAT I HAVE EXAMINED SHOWED ANY EVIDENCE OF THIS SECOND ROW OF FEATHERS, SO THIS MAY HAVE BEEN ONLY DONE FOR THE HIGHEST QUALITY CURRENCY. KOCH (1971) RECORDS THAT FROM 1500 TO 1800 PLATELETS WERE NEEDED TO MAKE ONE ROLL, AND THIS REQUIRED ABOUT 700 HOURS OF WORK. WHEN FINISHED, THESE PLATELETS WERE THEN PASSED ONTO THE THIRD SPECIALIST, WHO BOUND THEM INTO A LONG COIL, CONSTRUCTED USING CORDS AND LONG STRIPS OF BARK TAKEN FROM THE TREE GNETUM GNEMON. TWO FIBRE CORDS WERE STRETCHED BETWEEN TREES, AND A SPACER BAR MADE FROM THE WING BONE OF A FRUIT BAT WAS USED TO KEEP THE CORDS A CONSTANT DISTANCE APART. THE PLATELETS WERE THEN BOUND ONE AT A TIME ONTO THE CORDS, WITH A BACKING STRIP OF BARK, USING VEGETABLE FIBRES, STARTING IN THE CENTRE AND WORKING OUTWARDS TOWARDS THE TWO ENDS. THE PLATELETS WERE OVERLAPPED LIKE TILES ON A ROOF SO THAT ONLY THE EDGE OF RED HONEY EATER FEATHERS WAS VISIBLE. EACH PLATELET OVERLAPPED THE PREVIOUS ONE, SO THAT THE RED FEATHERS HID THE BASAL AND SUPPORTING STRUCTURE OF THE PRECEDING PLATES. THE FINISHED ROLLS WERE BRILLIANT IN COLOUR, UNIFORM IN TEXTURE AND FEATHER DENSITY, AND SPECTACULAR OBJECTS IN THEMSELVES (FIGURE 3). MOST ROLLS WERE DECORATED BY A WOVEN PATTERN OF PLANT FIBRES ON THE UNDERSIDE, IN THEIR MID-POINT AND AT THEIR TWO ENDS (FIGURES 4 & 5). THE WOVEN DESIGNS WERE THE HALLMARK SIGNATURE OF THE PERSON WHO MADE THEM, AND ONLY VISIBLE WHEN THE FEATHER MONEY WAS UNROLLED. SEVERAL DECORATIVE STRINGS OF SMALL SHELLS, PLATES OF TURTLE SHELL, BEADS OR PIGS TEETH, WERE ATTACHED TO BOTH THE MID-POINT OF EACH ROLL AND THE TWO ENDS. FINALLY, THE ROLLS WERE USUALLY ACCOMPANIED BY A WOODEN 'CHARM'. THESE WERE CROSS OR Y-SHAPED PIECES OF WOOD, SOMETIMES WITH A TURTLE OR FISH CARVED ON THEM (FIGURE 6). OTHERS CONSISTED OF FLAT BOARDS WITH A PAINTED PATTERN IN RED, BLACK AND WHITE. LITTLE IS KNOWN OF THE FUNCTION OF THESE 'CHARMS'. THEY WERE NOT TIED ONTO THE CURRENCY, BUT JUST LOOSELY PLACED ON TOP OF THE ROLLS BEFORE THESE WERE WRAPPED IN TRADE CLOTH AND PALM LEAVES FOR STORAGE. IT SEEMS THAT THE 'CHARMS' IN SOME WAY PROTECTED THE VALUE, STATUS OR MAGIC, OF THE FEATHER CURRENCY (DAVENPORT 1962).

THESE FEATHER CURRENCY ROLLS HAD A COMPLEX VALUATION SYSTEM BASED ON TWO FACTORS, THEIR ORIGINAL FORM OF CONSTRUCTION AND THEIR CONDITION. BEASLEY (1936) DETAILS ELEVEN FORMS OF THIS CURRENCY, WHICH DIFFERED IN VALUE. EACH WAS GIVEN A DIFFERENT NAME, AND THEY SEEMED TO DIFFER MAINLY IN THEIR SIZE (BOTH WIDTH AND LENGTH) AND IN WHETHER THEY WERE MADE USING ONLY THE RED FEATHERS, ONLY BLACK FEATHERS, OR

A COMBINATION OF THE TWO. ALL OF THOSE THAT I HAVE FOUND IN MUSEUM COLLECTIONS BELONG TO BEASLEY'S SECOND DESCRIPTION, WHICH HE IDENTIFIED AS MAR-LI, WHICH USED ONLY THE RED FEATHERS. THIS WAS THE SECOND HIGHEST VALUE FORM OF FEATHER CURRENCY, ONLY EXCEEDED BY THE LARGEST FORM OF RED FEATHER CURRENCY, NOPAMUR, WHICH WERE OVER 8CM IN WIDTH AND AT LEAST 11 METRES IN LENGTH, AND WHICH HE REPORTS WERE NO LONGER BEING PRODUCED IN THE 1930'S BECAUSE THEIR EXCHANGE VALUE WAS TOO GREAT TO BE USEFUL. ALL THE LOWER VALUE FORMS WERE SMALLER AND HAD BLACK OR GREY FEATHERS, AND FEW EXAMPLES OF THESE REMAIN IN ANY MUSEUM. EACH OF THESE DIFFERENT TYPES OF FEATHER CURRENCY HAD A DIFFERENT VALUE, A ROLL OF NOPAMUR BEING ABOUT FOUR TIMES MORE VALUABLE THAN A ROLL OF MAR-LI. ALONGSIDE THE DIFFERENT VALUES OF EACH FORM OF FEATHER CURRENCY, THE VALUE OF EACH TYPE ALSO DEPENDED HEAVILY ON ITS CONDITION. THE BIRDS VARY SOMEWHAT IN THE INTENSITY OF THEIR RED FEATHERS, SOME BEING A BRILLIANT CRIMSON COLOUR, OTHERS A LESS VALUED DULLER RED OR ORANGE. APART FROM THIS NATURAL VARIATION IN COLOUR WHEN THE CURRENCY WAS FIRST MADE, WITH TIME THE FEATHERS FADED AND LOST THEIR VIBRANCY. OVER TIME ALSO THE CURRENCY DETERIORATED, MAINLY IN THE LOSS OF THE RED FEATHERS, SO THAT THE ROLLS BECAME INITIALLY PATCHY, AND EVENTUALLY BALD. THE VALUE OF EACH ROLL WAS JUDGED BY ITS CONDITION, AND THIS WAS A COMPLEX PROCESS AND THE CAUSE FOR GREAT DISCUSSION BETWEEN THE PARTIES IN ANY MONETARY TRANSACTION. DAVENPORT (1962) REPORTS A TEN UNIT VALUE SYSTEM, WHILE KOCH (1971) DESCRIBES A SCALE WITH FIFTEEN UNITS. PROGRESSION WAS NOT ARITHMETRIC BUT GEOMETRIC, SUCH THAT EACH PIECE OF A GIVEN UNIT WAS WORTH TWICE AS MUCH AS THE ONE BELOW IT. IF, THEREFORE, A LOW VALUE PIECE HAD A VALUE OF 1, A NUMBER 5 PIECE HAD A VALUE OF 16 AND A TOP UNIT PIECE OF NUMBER 10 WAS WORTH 512. THERE WAS NO FORMAL VALUE SYSTEM ASSOCIATED WITH THESE UNITS, BUT A GENERAL UNDERSTANDING BY EVERYONE OF WHAT CONDITION A ROLL HAD TO BE IN TO BE ALLOCATED A CERTAIN VALUE ON THIS SCALE. ROLLS IN UNITS 1 TO 5 WERE CALLED 'PORKERS', BECAUSE THEY WERE WITHIN THE RANGE USUALLY USED TO BUY A PIG SUITABLE FOR A FEAST DAY CELEBRATION, WHEREAS CURRENCY UNITS FROM 6 TO 10 WERE CALLED 'SUCKLINGS' BECAUSE THEY WERE OF MUCH LOWER VALUE AND EACH ONE WOULD ONLY BUY A YOUNG PIG TOO SMALL TO BE WORTH EATING (DAVENPORT 1964).

I FIND IT DIFFICULT TO ACCEPT DAVENPORT'S (1964) COMMENT THAT THE CONSTRUCTION OF THESE ROLLS REQUIRED LITTLE SKILL. BEASLEY (1936) COMMENTS ON HOW EXTREMELY DIFFICULT IT WAS TO WORK WITH SUCH TINY FEATHERS, BECAUSE EVEN IN A CLOSED ROOM IT WAS IMPOSSIBLE TO HANDLE THE FEATHERS WITHOUT MANY FLOATING AWAY IN THE AIR. ALL THE COMPLETED ROLLS THAT I HAVE SEEN ARE EXTRAORDINARILY WELL MADE WITH VERY UNIFORM FEATHER DISTRIBUTION AND NO TRACE WHATEVER OF THE GLUE SPOILING THEIR VISIBLE SURFACE. BEASLEY (1936) STATES BOTH THAT EACH ROLL TOOK ABOUT A YEAR TO MAKE, AND THAT A SKILLED WORKER WOULD MAKE FIVE IN A YEAR. THESE STATEMENTS MIGHT APPEAR CONTRADICTORY, BUT PROBABLY A CRAFTSMAN WOULD HAVE SEVERAL ROLLS AT DIFFERENT STAGES OF MANUFACTURE AT ANY ONE TIME. CLEARLY MANY MONTHS OF WORK WENT INTO MAKING EACH INDIVIDUAL ROLL. ROLLS WERE MADE TO ORDER, AND EACH OF THE THREE CRAFTSMEN INVOLVED HAD TO BE CONTRACTED SEPARATELY. THERE IS NO INFORMATION ON HOW QUICKLY THE ROLLS DETERIORATED. BEASLEY'S (1936) ACCOUNT STATES THAT LOCALS CLAIMED THAT SOME ROLLS SURVIVED FOR 150 YEARS, A STATEMENT THAT BEASLEY CONSIDERED AN EXAGGERATION, AS DO I. BUT MANY OF THE ROLLS IN MUSEUM COLLECTIONS ARE COMPLETELY BALD OF FEATHERS, AND LITTLE MORE THAN DULL, LEATHER-LIKE ROLLS OF BARK, AND IT MAY BE THAT ONCE ROLLS HAD DETERIORATED TO THIS STATE THEY WOULD INDEED LAST 150 YEARS, OR ALMOST INDEFINITELY, BUT THEIR VALUE WOULD HAVE BEEN LOW. ANYONE WHO HAS LIVED IN THE HUMID TROPICS KNOWS THAT ANY STRUCTURE MADE OF TREE BARK, VEGETABLE GLUE AND FEATHERS IS UNLIKELY TO REMAIN IN GOOD CONDITION FOR LONG, EVEN IF STORED IN THE SMOKY ATMOSPHERE OF A HUT ROOF. THE HIGH VALUE ROLLS, WITH A FULL COVERING OF UNIFORM RED FEATHERS, ARE IN MY JUDGEMENT UNLIKELY TO HAVE LASTED IN PRIME CONDITION FOR MORE THAN A FEW DECADES, AND MAYBE UP TO 50 YEARS (M. PRENDERGAST. PERS. COMM.).

THE FACT THAT FEATHER MONEY DETERIORATED WITH TIME WAS IMPORTANT FOR ITS EFFECTIVENESS AS A CURRENCY. TO AVOID INFLATIONARY PRESSURE ON AN ECONOMY THERE HAS TO BE A LIMIT ON MONEY SUPPLY, OR ELSE IT BECOMES DEVALUED AS MORE IS PRODUCED. FEATHER MONEY WAS AN EFFECTIVE CURRENCY WHICH RETAINED ITS VALUE BECAUSE THEY DETERIORATED WITH TIME, AND THERE WAS A LIMIT TO THE NUMBER OF NEW FEATHER ROLLS THAT COULD BE MANUFACTURED EACH YEAR, PROBABLY SET BOTH BY THE LIMITED AVAILABILITY OF THE REQUIRED FEATHERS, THE LENGTH OF TIME TAKEN FOR THEIR MANUFACTURE, AND THE LIMITED NUMBER OF FAMILIES WHO WERE ALLOWED TO CARRY OUT THIS WORK. PROVIDED THAT THE RATE OF PRODUCTION CLOSELY MATCHED THE RATE AT

WHICH OLD CURRENCY ROLLS DETERIORATED EACH YEAR, THERE WOULD BE LITTLE INFLATIONARY PRESSURE ON THE ECONOMY.

DAVENPORT (1962) AND BEASLEY (1936) BOTH REPORT THAT THE NORMAL PRICE FOR A WIFE WAS TEN FEATHER ROLLS OF A RANGE OF VALUE UNITS. BEING A MARKET SYSTEM, THERE WAS VARIATION, WITH SOME WIVES FETCHING MORE THAN OTHERS. BEASLEY (1936) COMMENTS THAT WIVES FROM THE OUTER ISLES WERE CONSIDERED LESS VALUABLE, BUT DAVENPORT (1962) REPORTS THEY WERE MORE EXPENSIVE. CONCUBINES WERE TEN TIMES MORE EXPENSIVE THAN WIVES (DAVENPORT 1962). A GOOD WIFE HAD ABOUT THE SAME VALUE AS A SMALL CANOE (BEASLEY 1936). IF WE TAKE TEN AS A MEAN PRICE OF A BRIDE, AND IGNORE THE UNKNOWN SCALE OF CONCUBINE OWNERSHIP, WE CAN MAKE SOME ROUGH ESTIMATES OF HOW MANY SCARLET HONEYEATERS WERE TAKEN EACH YEAR FROM THE WILD POPULATION. THESE FIGURES ARE NOT INTENDED TO BE TAKEN TOO SERIOUSLY – THEY ARE MORE TO INDICATE THE SCALE OF THE TRADE. BEASLEY (1936) GIVES TWO DIFFERENT FIGURES FOR THE POPULATION OF SANTA CRUZ IN THE 1930'S OF 1,200 AND 1,500. IF WE ASSUME THE HIGHER FIGURE, AND ASSUME AN EQUAL SEX RATIO, THERE WOULD HAVE BEEN ABOUT 750 FEMALES IN THE POPULATION. IF WE ASSUME AN AVERAGE LIFE EXPECTANCY OF 45 YEARS, (REASONABLE FOR THE PERIOD BEFORE THE SECOND WORLD WAR WHEN WESTERN MEDICINE AND INFLUENCE HAD NOT YET BECOME ESTABLISHED), AND THAT THE POPULATION WAS STABLE SUCH THAT THE NUMBER OF DEATHS WAS BALANCED BY THE NUMBER OF CHILDREN SURVIVING TO ADULTHOOD, THIS WOULD SUGGEST ABOUT 16 WOMEN ATTAINING MARRIAGEABLE AGE EACH YEAR. IF WE ASSUME THAT 10 FEATHER ROLLS WERE NEEDED TO BUY EACH WIFE, THIS WOULD REQUIRE A CURRENCY SUPPLY OF 160 ROLLS JUST TO CATER FOR THE MARRIAGE MARKET ALONE. IF WE ASSUME THAT EACH ROLL WOULD LAST FOR ABOUT 15 YEARS BEFORE ITS CONDITION STARTED TO DETERIORATE TO SUCH AN EXTENT THAT ITS VALUE STARTED TO FALL, THIS WOULD SUGGEST ABOUT 10 NEW FEATHER ROLLS NEEDED TO BE MANUFACTURED EACH YEAR. FEATHER CURRENCY WAS ALSO USED FOR BUYING GOODS, PIGS, CANOES, TO PAY FINES FOR FORNICATION, THEFT AND OTHER GROSS MISDEMEANOURS (BEASLEY 1936), BUT WE HAVE NO INFORMATION ON THE SCALE OF THESE TRANSACTIONS. IF WE ASSUME THAT MARRIAGE WAS A SIGNIFICANT EVENT THAT SOCIETY EXPECTED TO BE MARKED BY A CONSPICUOUS DISPLAY OF WEALTH (A PHENOMENON NOT UNKNOWN IN WESTERN SOCIETY TODAY), MAYBE THE MARRIAGE MARKET ACCOUNTED FOR A HALF OF ALL CURRENCY CIRCULATION, SUGGESTING A TOTAL OF 20 ROLLS NEEDED TO BE MANUFACTURED EACH YEAR TO SUSTAIN THE CURRENCY. DAVENPORT (1962) REPORTS THAT IN THE 1960'S NO MORE THAN TEN ROLLS COULD BE MADE PER YEAR, BUT BY THIS TIME FEATHER CURRENCY WAS BEING REPLACED BY THE AMERICAN DOLLAR. BEASLEY (1936) ESTIMATED THAT IN THE 1930'S ONLY TEN PEOPLE WERE MAKING CURRENCY AND THEIR TOTAL OUTPUT COULD NOT EXCEED 20 PER YEAR. SO TWENTY SEEMS THE RIGHT ORDER OF MAGNITUDE.

THE NEXT ESTIMATE WE NEED IS THE NUMBER OF BIRDS REQUIRED TO MAKE EACH ROLL. BEASLEY (1936) REPORTS 400 TO 600 BIRDS, DAVENPORT (1962) 300, AND KOCH DOES NOT GIVE THE NUMBER OF BIRDS BUT SAYS FROM 50/60,000 FEATHERS WERE NEEDED. IT IS NOT CLEAR IF ANY OF THESE ESTIMATES ARE BASED ON ORIGINAL OBSERVATIONS OR FROM QUESTIONING THE CRAFTSMEN WHO MADE THE ROLLS. I ATTEMPTED TO CALCULATE THE NUMBER OF BIRDS REQUIRED TO MAKE THIS CURRENCY FROM MUSEUM MATERIAL. THERE ARE COMPARATIVELY FEW FEATHER ROLLS IN MUSEUM AND PRIVATE COLLECTIONS. BEASLEY'S COMMENT THAT THERE MAY BE ONLY 20 IN ALL THE MUSEUMS AND PRIVATE COLLECTIONS IN THE WORLD IS CERTAINLY AN UNDERESTIMATE, BUT THEY ARE RARE. THIS IS BECAUSE IN THE PAST THE INHABITANTS OF THE SANTA CRUZ ISLANDS HAD A REPUTATION FOR BEING HOSTILE TO VISITORS AND THE ISLANDS WERE RARELY VISITED BY TRADING SHIPS BEFORE THE RED FEATHER CURRENCY STARTED TO FALL OUT OF REGULAR USE. SO ARTEFACTS WERE NOT COLLECTED ON THE SCALE THAT OCCURRED IN MANY OTHER PACIFIC ISLANDS IN THE 18TH AND 19TH CENTURY. I HAVE TAKEN MEASUREMENTS FROM ELEVEN ROLLS IN MUSEUM AND PRIVATE COLLECTIONS. THEY WERE NOT UNCOILED, BECAUSE OF THEIR FRAGILE CONDITION, AND SOFT STRING WAS USED TO TRACE ROUND THE COILS AND DETERMINE THE TOTAL LENGTH OF THAT PART OF THE ROLL TO WHICH CARDINAL HONEY-EATER FEATHERS HAD BEEN APPLIED. THIS IS A SLIGHTLY SHORTER LENGTH THAN THE TOTAL LENGTH OF THE ROLL, BECAUSE THE END PIECES COMPRISE ONLY OF A WOVEN SECTION OF BARK AND PLANT FIBRES. FIVE RANDOMLY SELECTED MEASUREMENTS WERE TAKEN OF THE WIDTH AND THE FEATHERED EDGE OF EACH ROLL. THE MEASUREMENTS ARE GIVEN IN TABLE 1, WHICH PROVIDES A MEAN TOTAL AREA OF RED FEATHER SURFACE ON EACH ROLL OF 6,223 CM^3

TABLE 1. MEASUREMENTS FROM SANTA CRUZ FEATHER MONEY ROLLS HELD IN AUCKLAND MUSEUM (A), BRITISH MUSEUM (BM), CAMBRIDGE UNIVERSITY MUSEUM OF ARCHAEOLOGY AND ETHNOGRAPHY (C) AND PRIVATE COLLECTIONS (PC), ALL MEASUREMENTS BEING ONLY THOSE AREAS ON EACH ROLL TO WHICH RED FEATHERS WERE ATTACHED. ONLY ROLLS WITH A GOOD CONDITION OF FEATHER COVERING WERE MEASURED.

LOCATION	LENGTH OF FEATHER SECTION	WIDTH	EDGE	TOTAL FEATHER AREA, CM3
A. 18346.1	834	4.5	0.5	4,587
A. 23667.1	826	4.5	0.3	4,212
A. NO 18346.2	852	5.3	1.0	6,220
BM 91.3-22.1A	832	5.2	1.0	5,990
BM 1963. OC+4	823	5.6	1.2	6,584
BM 1976 OC11	869	5.1	1.6	7,212
BM 1963 OC+3A	853	4.8	0.6	5,118
C.1954.80	886	5.7	1.9	8,417
C. E. 1901.208	843	5.5	1.1	6,491
P.C	900	5.5	1.2	7,110
P.C.	905	5.0	1.1	6,516
MEAN	857	5.2	1.05	6,223

I HAD ORIGINALLY HOPED TO COUNT FEATHER DENSITY, AND ESTIMATE THE TOTAL NUMBER OF FEATHERS NEEDED TO COMPLETE EACH ROLL. BUT ON EXAMINING THE ROLLS IT IS CLEAR THAT THIS IS NOT POSSIBLE WITHOUT TAKING THEM APART. THE SCARLET HONEY EATER FEATHERS ONLY HAVE THE RED PIGMENT ON THEIR OUTER 5MM TIP, THE REMAINDER (10-12MM) BEING GREY IN COLOUR. WHEN THE FEATHERS WERE GLUED ONTO THE PLATELETS THE GREY BASE OF EACH FEATHER, WITH THE FEATHER SHAFT, WAS OBSCURED BY THE OVERLAPPING PLATELETS. ONLY THE TIP RED FRINGE OF EACH FEATHER WAS VISIBLE, WHICH MAKES IT IMPOSSIBLE TO ACCURATELY COUNT INDIVIDUAL FEATHERS FROM THE EXTERNAL APPEARANCE OF A ROLL. ALL THAT I HAVE BEEN ABLE TO DO IS CALCULATE THE TOTAL AREA OF RED FEATHER COVERAGE ON THE MUSEUM CURRENCY ROLLS. EXAMINATION OF BIRD SKINS IN THE NATURAL HISTORY MUSEUM ALSO SHOWS THAT IT IS NOT POSSIBLE TO OBTAIN AN ACCURATE ESTIMATE OF THE TOTAL NUMBER OF RED FEATHERS TO BE FOUND ON EACH BIRD (WITHOUT PLUCKING THEM!). EVEN ON SKINS WHERE THE INSIDE OF THE SKIN WAS EXPOSED, IT WAS NOT POSSIBLE TO IDENTIFY INDIVIDUAL FEATHER SHAFTS AND DERIVE AN ESTIMATE OF FEATHER DENSITY. HOWEVER, IT IS CLEAR FROM EXAMINING BOTH BIRD SKINS AND FEATHER CURRENCY TOGETHER THAT THE DENSITY OF RED FEATHERS ON THE ROLLS IS APPROXIMATELY THE SAME AS THAT ON THE BIRD. PRESUMABLY BOTH WERE AIMING TO ACHIEVE AS BRILLIANT AN EFFECT AS THEY COULD WITH THE MINIMUM NUMBER OF RED FEATHERS – IN THE CASE OF THE BIRD BECAUSE OF RESOURCE SHORTAGE OF THE CAROTENOID PIGMENTS WHICH HAVE TO BE DERIVED FROM THE DIET, AND IN THE CASE OF THE CURRENCY MANUFACTURERS FOR ECONOMIC REASONS. FROM EXAMINING THE SKINS IN THE BRITISH MUSEUM IT IS CLEAR THAT THERE IS CONSIDERABLE INDIVIDUAL VARIATION IN THE EXTENT OF RED FEATHERS ON PACIFIC HONEY EATERS FROM DIFFERENT ISLAND GROUPS.

IT IS ALSO CLEAR THAT, CONTRARY TO THE LITERATURE REPORTS (KOCH 1971), THE FEATHERS ON THE HEAD, THROAT AND NECK OF THE BIRDS WERE NOT USED ON ANY OF THE CURRENCY ROLLS THAT I HAVE EXAMINED: THEY ARE TOO SMALL. IT SEEMS THAT ON THE CURRENCY I EXAMINED ONLY THE LONGER COVERT FEATHERS FROM THE UNDERSIDE AND BACK OF THE BIRDS WERE USED. THE MEAN TOTAL AREA OF SUCH RED FEATHERING ON EACH BIRD IS 18 CM2 MAXIMUM, ALTHOUGH THIS IS VERY VARIABLE AND THERE ARE ONLY 6 MALE SKINS OF THE SANTA CRUZ RACE OF M. CARDINALIS IN THE BRITISH MUSEUM (3 AT TRING AND 3 IN THE ETHNOGRAPHY COLLECTION). THIS SUGGESTS THAT, IF WE TAKE FROM TABLE 1 A MEAN VALUE OF ABOUT 6,223 CM2 FEATHER AREA PER CURRENCY ROLL, THERE WOULD BE A NEED FOR A MINIMUM OF 345 BIRDS TO SUPPLY SUFFICIENT FEATHERS. I STARTED THIS EXERCISE CONVINCED THAT THE NUMBER OF BIRDS NEEDED TO MANUFACTURE EACH CURRENCY ROLL HAD BEEN GREATLY UNDERESTIMATED IN THE LITERATURE, SO IT IS COMFORTING TO FIND THAT THE LITERATURE DOES INDEED SEEM TO BE QUITE ACCURATE ON THIS, AND THAT THE 300 TO 500 BIRDS QUOTED BY BEASLEY (1936) AND DAVENPORT (1962) ARE PROBABLY CORRECT. THERE MUST HAVE BEEN CONSIDERABLE WASTAGE OR LOSS DURING EACH STAGE OF THE MANUFACTURING PROCESS, WHICH IS IMPOSSIBLE TO ESTIMATE. THE FEATHERS ARE EXTREMELY SMALL AND DELICATE, AND THE WORK WAS SO INTRICATE THAT IT MUST HAVE BEEN CONDUCTED OUTDOORS TO HAVE SUFFICIENT LIGHT. MANY OF THE FEATHERS MUST HAVE BEEN BLOWN AWAY, OR RENDERED USELESS BY TRACES OF GLUE. I THINK, BEARING THIS IN MIND, THAT A FIGURE OF ABOUT 500 BIRDS NEEDED FOR EACH ROLL IS REASONABLE, AND THIS IS IN CLOSE AGREEMENT WITH BEASLEY AND DAVENPORT'S REPORTS. ASSUMING TWENTY ROLLS WERE BEING PRODUCED EACH YEAR, THIS SUGGESTS THAT AROUND 10,000 HONEY EATERS WERE BEING KILLED PER YEAR. WE ALSO HAVE NO DATA ON THE SCALE OF THE EARLIER TRADE USING THE MOST VALUABLE FORM OF FEATHER CURRENCY, WHICH BEASLEY (1934) DESCRIBES AS THE NOPAMUR ROLL, AND WHICH BEASLEY SAYS EACH REQUIRED THE FEATHERS FROM A THOUSAND BIRDS EACH. TRADE IN THIS FORM OF CURRENCY HAD DIED OUT BEFORE ANY PUBLISHED RECORDS, AND I KNOW OF NO EXAMPLES IN MUSEUM COLLECTIONS. THESE ARE MANY ASSUMPTIONS IN ANY SUCH CALCULATIONS, BUT THE FIGURE OF 10,000 BIRDS KILLED PER YEAR IS PROBABLY CONSERVATIVE. THE AVAILABILITY OF SUFFICIENT BIRDS WAS PROBABLY A REAL FACTOR LIMITING THE MONEY SUPPLY.

I DO NOT KNOW OF ANY RECENT FIELD STUDIES ON BIRDS ON SANTA CRUZ. ON OTHER PACIFIC ISLANDS, HONEY EATERS ARE USUALLY AMONG THE MOST ABUNDANT OF ALL BIRD SPECIES (BUDEN, 2000 FOR M. RUBRATRA ON POHNPEI, MICRONESIA, FREIFELD (1999) FOR M. CARDINALIS ON SAMOA) IN ORIGINAL FOREST THEY ARE MAINLY CANOPY FEEDERS (CRAIG & BEAL, 2001), BUT THE NECTAR BEARING FLOWERS ON WHICH THEY FEED ARE OFTEN MORE ABUNDANT IN SECONDARY FOREST OR CULTIVATED LAND, AND ESPECIALLY IN ORNAMENTAL GARDENS, AND HONEY EATER DENSITY IS USUALLY MUCH HIGHER IN THESE AREAS, AS WAS SHOWN BY CRAIG (1996) AND CRAIG AND BEAL (2001) ON SAIPAN, MARIANA ISLANDS FOR M. RUBRATRA AND FOR M CARDINALIS BY FREIFELD (1999) ON TUTUILA ISLAND SAMOA, AND STEADMAN AND FRANKLIN (2000) ON LAKEBA, FIJI. FREIFELD (1999) IN HIS STUDY OF THE BIRD COMMUNITY ON TUTUILA ISLAND, SAMOA, FOUND M. CARDINALIS TO BE ONE OF THE FEW SPECIES FOUND IN ALL HABITATS, BUT THAT ABUNDANCE VARIED BY A FACTOR OF 20, WITH THE GREATEST ABUNDANCE AROUND VILLAGES AND OTHER DISTURBED HABITATS, AND LOWEST DENSITIES IN NATIVE FOREST. BREGULLA (1992) ON VANUATU REPORTS THAT M. CARDINALIS HAS AN EXTREMELY WIDE RANGE OF HABITATS, BEING FOUND FROM THE HIGHEST MOUNTAIN FORESTS TO THE LOWLANDS, AND AGAIN REPORTS THE SPECIES TO BE ESPECIALLY ABUNDANT AROUND COCONUT PLANTATIONS AND SUBURBAN GARDENS. ON SANTA CRUZ THE ORIGINAL FOREST WAS HEAVILY LOGGED DURING THE 1930'S FOR THE EXTRACTION OF THE VALUABLE KAORI TIMBER, AND MOST OF THE ISLAND TODAY IS SECONDARY FOREST AND AGRICULTURAL LAND. HONEY EATER DENSITY THERE TODAY MAY THEREFORE BE QUITE DIFFERENT FROM THAT FOUND IN THE ORIGINAL FOREST COVER OF THE ISLANDS. I ONLY KNOW OF ONE STUDY ON HONEY EATER ABUNDANCE, THAT OF NOSKE (1996) FOR THE SIMILAR SIZED RED-HEADED HONEY EATER M. ERYTHROCEPHALA IN MANGROVE FOREST AT DARWIN, NORTHERN TERRITORY OF AUSTRALIA, WHO FOUND A MEAN DENSITY OF 5.5 + 0.63 BIRDS PER HECTARE (ALTHOUGH THIS STUDY FOUND DENSITY WAS VARY VARIABLE BETWEEN HABITATS). THE TOTAL LAND AREA OF THE SANTA CRUZ ISLANDS IS 505 KM2 FOR NENDO, 173 FOR VANIKORO, 69 FOR UTUPUA AND PERHAPS 50 FOR THE OUTLYING ISLETS MAKING A TOTAL OF 797 KM2. GOOGLE EARTH SUGGESTS THAT MOST OF THE LAND IS DENSELY VEGETATED, BUT THERE ARE SOME AREAS OF SHORE AND BARE ROCK, SO IF WE ASSUME 75% OF THE ISLAND WAS OF SUITABLE HABITAT, WITH A DENSITY OF 5.5 BIRDS PER HECTARE, THIS SUGGESTS A POPULATIONS OF 328,000 BIRDS. IF WE ASSUME AN EQUAL SEX RATIO, MAYBE 164,000 MALES. THIS SUGGESTS THAT THE FEATHER CURRENCY TRADE MIGHT HAVE BEEN RESPONSIBLE FOR 6% MORTALITY OF THE MALE POPULATION.

ONE COMPLICATING FACTOR IS THAT MAYR (1945) REPORTS THAT ON SANTA CRUZ THE MALES SEEM TO OUTNUMBER FEMALES BY A FACTOR OF ABOUT 4. NO OTHER PUBLICATION ON PACIFIC HONEY EATERS SEEMS TO COMMENT ON THIS, SO IT MAY BE AN IMPRESSION GAINED BY MAYR FROM A SMALL SAMPLE. ANOTHER EXPLANATION MIGHT BE THAT THIS IS A MODERN EFFECT. IF FEMALES SPEND A GREATER AMOUNT OF TIME AT THE NEST, INCUBATING OR BROODING, THEY MIGHT BE MORE VULNERABLE TO THE INTRODUCED PREDATORS SUCH AS RATS AND CATS THAT HAVE BEEN RESPONSIBLE FOR THE DECLINE OF SO MANY ISLAND BIRD SPECIES. SO THE PRESENT MALE BIAS IN THE POPULATION, IF CORRECT, MIGHT HAVE NOT BEEN SO EVIDENT BEFORE EUROPEAN CONTACT WITH THE ISLANDS.

THE CARDINAL HONEY EATER HAS A COMPARATIVELY LOW POTENTIAL RATE OF REPRODUCTION – THE NORMAL CLUTCH SIZE IS TWO EGGS, OR EXCEPTIONALLY THREE (MAYR 1945). IT IS GENERALLY RECOGNISED THAT TROPICAL PASSERINES HAVE MARKEDLY LOWER MORTALITY RATES THAN TEMPERATE SPECIES (JOHNSTON ET AL 1997) PROBABLY BECAUSE OF MORE STABLE CLIMATE AND FOOD SUPPLIES. THERE IS LITTLE DATA ON THIS, BECAUSE OF THE DIFFICULTIES OF ESTIMATING SURVIVAL RATE IN WILD BIRDS, BUT EVEN SMALL PASSERINES SUCH AS HUMMINGBIRDS AND WRENS CAN HAVE MORTALITY RATES AS LOW AS 30 – 48% (PARKER ET AL 2006), AND IN A SURVEY OF 17 PASSERINES IN TRINIDAD VALUES RANGED FROM 15% TO 55% (JOHNSTON ET AL. 1997). ALSO THAT ISLAND SPECIES SEEM TO HAVE PARTICULARLY LOW MORTALITY, PROBABLY BECAUSE THEY EVOLVED IN PREDATOR-FREE ENVIRONMENTS (FAABORG & ARENDT (1995). IF SANTA CRUZ SCARLET HONEYEATERS HAD SIMILAR DEMOGRAPHY, THE IMPOSITION OF AN ADDITIONAL 6% ANNUAL MORTALITY TO MALES BY HUMAN HUNTING MUST HAVE BEEN SUBSTANTIAL. THIS DID NOT LEAD TO THE SPECIES EXTINCTION, AND TODAY THE HONEY EATERS ARE AMONG THE MOST ABUNDANT BIRDS ON SANTA CRUZ.

ISLAND BIRD SPECIES ARE PARTICULARLY VULNERABLE TO EXTINCTION, AND PACIFIC ISLANDS HAVE PROBABLY LOST A HALF OR MORE OF THEIR BIRD SPECIES DURING THE PROCESS OF HUMAN SETTLEMENT (PIMM ET AL. 1994, MILBERG & TYRBERG 1993). IN A REVIEW OF THE CAUSES OF EXTINCTION JOHNSON AND STATTERFIELD (1990) CONCLUDED THAT HABITAT DESTRUCTION, INTRODUCED PREDATORS AND PERSECUTION WERE THE MAJOR CAUSE OF PAST EXTINCTION, BUT THAT INTRODUCED PREDATORS WERE THE MOST IMPORTANT FACTOR, FINDINGS THAT HAVE BEEN SUPPORTED BY SUBSEQUENT ANALYSES (BLACKBURN ET AL. 2004). THESE STUDIES SHOWED THAT HUMAN PERSECUTION WAS OF LESS IMPORTANCE, AND MIGHT ONLY BE SIGNIFICANT IN ASSOCIATION WITH OTHER RISK FACTORS. MOST AUTHORS HAVE POINTED OUT THE DIFFICULTY OF SEPARATING HUMAN HUNTING PRESSURE FROM HABITAT LOSS AND INTRODUCED PREDATORS, BECAUSE THESE EVENTS OFTEN HAPPENED SIMULTANEOUSLY AND SO THE EFFECTS ARE DIFFICULT TO SEPARATE, BUT LARGE BODIED BIRDS, ESPECIALLY FLIGHTLESS FORMS, DO SEEM THOSE VULNERABLE FROM HUMAN PERSECUTION, AND SMALLER SPECIES ARE LESS LIKELY TO BE MADE EXTINCT BY THIS FACTOR (DUNCAN ET AL 2001). THE SANTA CRUZ HONEY EATER POPULATION PERHAPS DEMONSTRATES THAT A HEAVY AND SUSTAINED HUNTING PRESSURE ON A SMALL, ISOLATED BIRD POPULATION DOES NOT NECESSARILY RESULT IN THEIR EXTINCTION, IF THIS IS NOT ASSOCIATED WITH OTHER FACTORS. MIKE PENDERGAST (PERS COMM.) FOUND SOME AREAS OF SANTA CRUZ TO BE VERY INACCESSIBLE, BEING UPRAISED CORAL WITH ROUGH TERRAIN, AND THESE AREAS MAY HAVE ACTED AS REFUGES FROM HEAVY HUNTING PRESSURE FOR THE BIRDS, AND AIDED THEIR SURVIVAL. OTHER SPECIES WERE NOT SO FORTUNATE. IN HAWAII THE MAMO HONEYCREEPER DREPANIS PACIFICA WAS HUNTED TO SUPPLY THE BRILLIANT YELLOW FEATHERS USED TO MAKE ROYAL CLOAKS. FULLER (1987) ESTIMATES THAT 80,000 BIRDS WERE KILLED TO MAKE A SINGLE CLOAK. THE SPECIES BECAME EXTINCT IN 1899, ALTHOUGH HABITAT DESTRUCTION AND INTRODUCED DISEASES WERE PROBABLY ALSO INVOLVED.

IT IS NOT CLEAR WHEN THE WIDESPREAD USE OF FEATHER CURRENCY AS THE NORMAL METHOD OF MONETARY TRANSACTION IN SANTA CRUZ DIED OUT. THIS WAS PROBABLY EARLY IN THE TWENTIETH CENTURY, ALONGSIDE THE ESTABLISHMENT OF MISSIONARY SETTLEMENT AND THE WIDESPREAD CULTURAL CHANGES THAT LATER FOLLOWED. SPEISER, WRITING IN 1916 (QUOTED IN QUIGGAN 1949) BELIEVED THAT NO NEW CURRENCY WAS BEING MADE THEN. HOWEVER, IT IS PROBABLE THAT SOME OLD FEATHER MONEY, AND A LIMITED AMOUNT OF NEW PRODUCTION, CONTINUED FOR SOME TIME AFTER THE ADOPTION OF THE AUSTRALIAN DOLLAR AS THE NORMAL CURRENCY. WRITING IN THE 1930'S BEASLEY (1936) REPORTED THAT MANUFACTURE HAD ALMOST STOPPED, BECAUSE WORKERS COULD EARN FAR MORE FROM THE TIMBER INDUSTRY THEN EXPLOITING THE NATIVE FORESTS. SHORTLY AFTERWARDS THE WHOLE REGION WOULD BECOME HEAVILY WESTERNISED WITH THE MASSIVE DEPLOYMENT OF TROOPS DURING THE SECOND WORLD WAR. DAVENPORT (1962) REPORTS THAT BY THE 1960'S THERE WAS NO LONGER ANY TRAFFIC IN FEATHER MONEY AS A NORMAL CURRENCY. HOWEVER, DAVENPORT REPORTS FIVE PEOPLE STILL MAKING FEATHER

ROLLS, ALTHOUGH THERE IS NO INFORMATION ON THE SCALE OF PRODUCTION. FEATHER MONEY MAY HAVE BEEN RETAINED ON A SMALL SCALE INTO THE 1960'S BECAUSE DAVENPORT REPORTS THAT ALTHOUGH THE AUSTRALIAN DOLLAR HAD BEEN ADOPTED AS THE NORMAL CURRENCY SINCE THE SECOND WORLD WAR, SOME MEN STILL DEMANDED THE TRADITIONAL FEATHER MONEY BEFORE THEY WOULD ALLOW THEIR DAUGHTERS TO BE MARRIED. DR. MICK PENDERGRAST (PERS.COM) WORKED ON SANTA CRUZ FOR ABOUT SIX YEARS FROM 1973 TILL 1980, AND HAS REGULARLY VISITED SINCE. WHILE HE WAS TEACHING ON THE ISLANDS HE CONFIRMS THAT RED FEATHER MONEY WAS NO LONGER IN USE IN THE TRADITIONAL MANNER. HE DID SEE SOME PIECES OF FEATHER MONEY BEING MANUFACTURED IN THE 1970'S AND 1980'S, BUT THESE WERE SINGLE PIECES AT AN INCOMPLETE STAGE, WHICH MAY HAVE BEEN MORE OF AN EXPERIMENT, AND THERE WAS NO EVIDENCE OF GENERAL PRODUCTION. SMALL FEATHER ITEMS, SUCH AS HAIR STICK DECORATIONS, ARE MADE TODAY ON A SMALL SCALE, AND REGULARLY APPEAR ON EBAY, BUT THIS IS ALL THAT REMAINS OF ONE OF THE MOST REMARKABLE CURRENCY SYSTEMS THAT HUMAN SOCIETIES EVER DEVELOPED.

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