

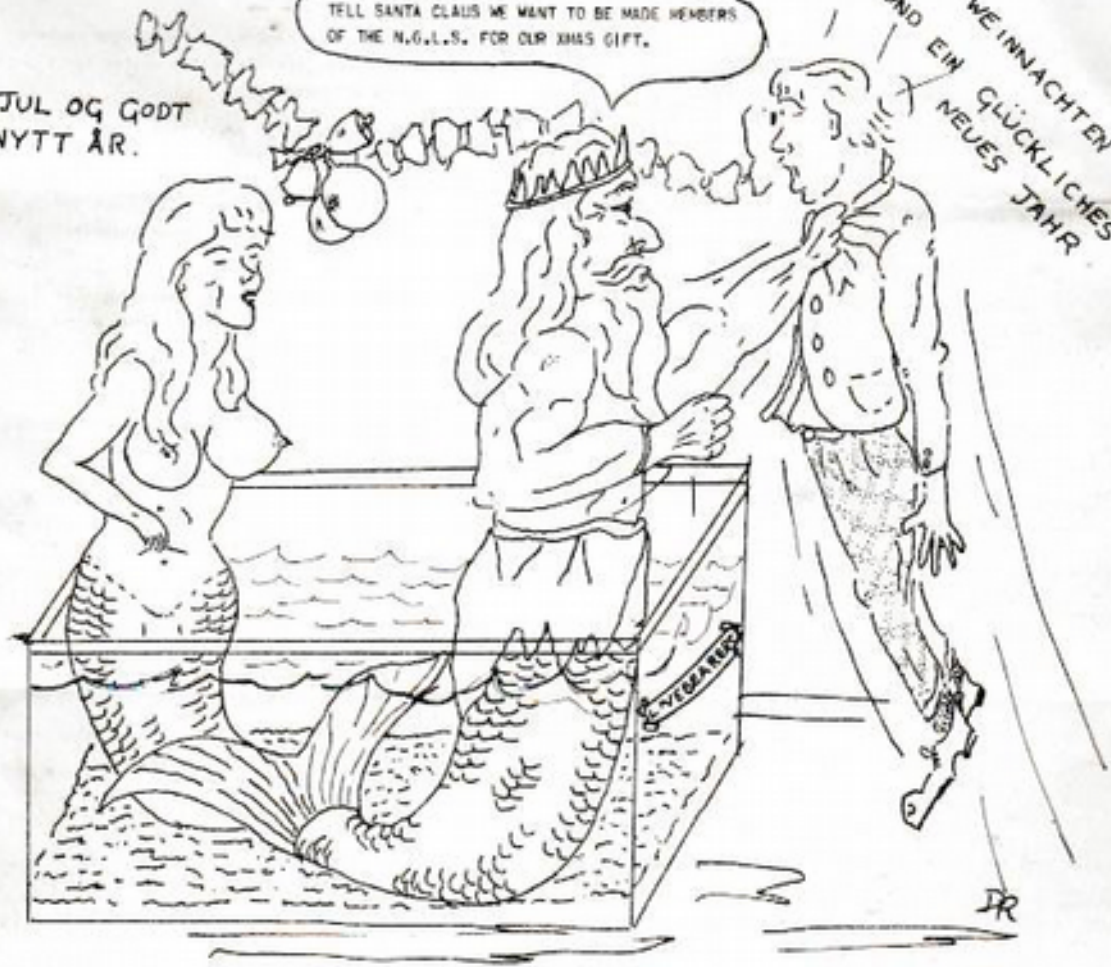
DECEMBER 1976

# N.G.L.S.

GOD JUL OG GODT  
NYTT ÅR.

TELL SANTA CLAUS WE WANT TO BE MADE MEMBERS  
OF THE N.G.L.S. FOR OUR XMAS GIFT.

FROHE WEINNACHTEN  
UND EIN GLÜCKLICHES  
NEUES JAHR.



Newcastle Guppy and Livebearer Society.

## CHAIRMAN'S LETTER

"Oh, what has happened to our livebearers in London this year?" In recent years the standard of livebearers at the Petfish Show has always been high and well worth viewing, however this years entries were not only down in number but also the quality left a lot to be desired. Having said that it is always easy to criticise other people and their fish, but while criticising them I must also criticise myself, because at least they made an effort and put their fish on the show bench, which is more than I did but I hope to remedy this next year and give you all a chance to criticise my fish and I hope more of our members will do the same.

Over the past twelve months I must have travelled many a thousand miles all over the country in search of livebearers and the people who keep them. I can honestly say that if you are a member of the Newcastle Guppy and Livebearer Society you should have no trouble in finding friends no matter where you go. In fact I don't think there is a club in the country that has not heard of our society.

Well, it is now coming to the end of the year and I will be looking forward to hearing from you all in 1977, so don't forget to send in your re-enrolment forms and we can always use your letters, articles and comments for publication on everything relating to livebearers, so DON'T BE SHY, GIVE IT A TRY! I also cannot believe I am the only one in the society who can draw a picture. At the moment I attempt to draw the illustrations for the I.D. sheet but I would be the first to admit I am by no means the world's greatest artist, but we have not received a single drawing from any of our members and I am sure you can do better than that. All that is necessary is the sketch to be on A4 paper, in black ink and roughly taking up no more than  $\frac{1}{2}$  of the page, so if you have a fish in one of your tanks that has not appeared on an I.D. then please help.

As I mentioned earlier, I attended the Petfish Show in October and I must send my thanks to the members of the Darlington Society who very kindly put myself and members from South Shields Society up for the night, and my personal thanks to Mervyn Strange and his wife, who got lumbered with me!

I mentioned in the previous issue that we would be trying to stage a show next year, well the Treasurer has given the all-clear to go ahead, so start getting your fish in condition for May 1st. The venue will not be the same as last year, as those of you who attended will be glad to hear, I must admit that the hall was far too small. The schedule will be out shortly and will virtually be the same as last year, with about twenty classes, and I am very glad to inform members that Mr. Sam Croft, secretary of the Fancy Guppy Association, has already agreed to judge the Guppy classes for us.

During the last six weeks I have had one or two requests for fish from corresponding members, (mostly for *G. rhabdophora*), and I am afraid that my females just won't oblige and produce fry at the moment but I am afraid that sending fish this late in the year is taking a big risk and I would advise anyone contemplating sending fish to remember with the Christmas rush of post starting to build up and winter fast approaching, the chances of losing fish are greatly increased. We will continue to publish the exchange column as I am sure that many of our members are keen enough to make contact and arrange other ways, such as personal collection.

Well it only remains to wish you all the compliments of the season:-  
"MAY YOU ALL HAVE A MERRY CHRISTMAS AND A HAPPY NEW YEAR!"

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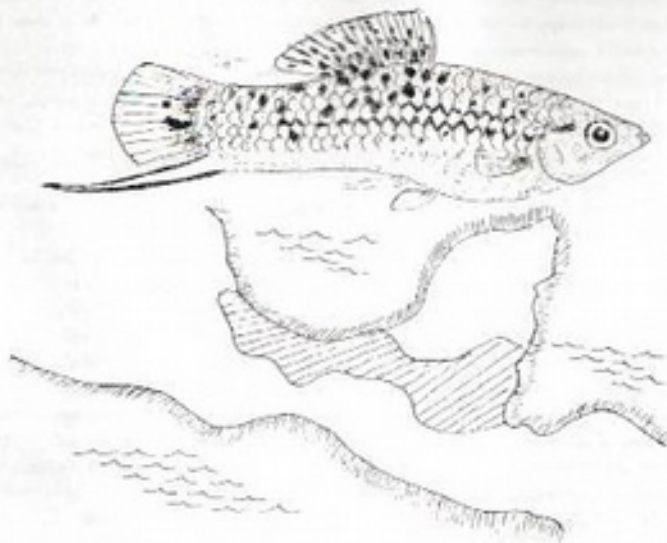
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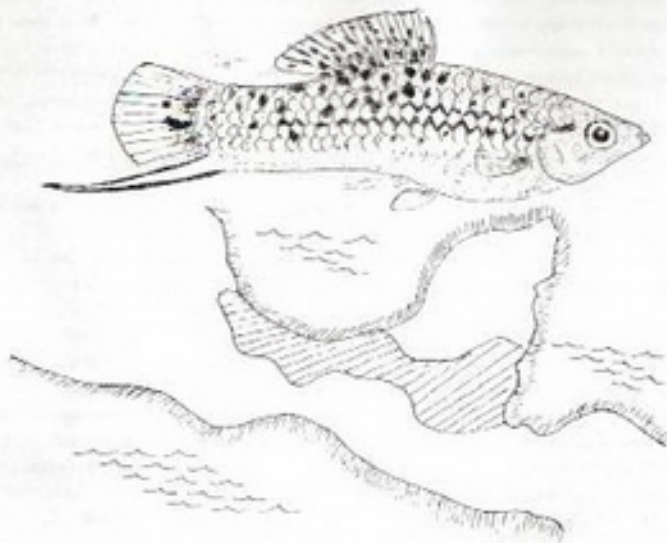


XIPHOPHORUS MONTEZUMAE

Subspecies : *Xiphophorus montezumae montezumae*.

*MONTEZUMA HELLERI*.

Family	:-	Poeciliidae
Genus	:-	Xiphophorus
Distribution	:-	Mexico
Size	:-	Male - 2½" Female - 3"
Coloration	:-	Bethesaxes - a brown zigzag band runs from the lower lip to the base of the caudal fin. Two other fine zigzag stripes, often interrupted, may appear on the rear part of the body. These can either be brown or dark red, depending on the original location. The scales have a dark border forming a net-like pattern. The sides of the body have a number of irregularly placed dark blotches. The front part of the body and the belly are silvery with a yellowish tinge. The shoulders are pale, metallic green and the back is dark olive. The males dorsal fin can be as tall as the base of the caudal fin and is yellowish/green in colour, with numerous small black dots. The caudal is yellowish and finely spotted. The sword is sea-green in the middle with a faint dark border.
Temperature	:-	68 - 75 F.
Gestation	:-	5 - 8 weeks.
Diet	:-	Live foods of all kinds, dried foods and vegetable matter.
Maintenance	:-	Aeration and filtration are necessary in the aquarium as these fish come from fast flowing waters. A well planted tank is advisable as they are rather timid. Sexual characteristics begin to appear at about 6 - 8 weeks of age.



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XENOTACA EISENI - THE RED TAILED GOODFID.

by MIKE WILSON & SALLY WINKLER.

Reprinted from the Colorado Aquarist, U.S.A.

A BEAUTIFUL, STURDY LIVEBEARER HAS RECENTLY BECOME AVAILABLE IN THE DENVER AREA, XENOTACA EISENI OR THE RED TAILED GOODFID. RECENTLY AS THEY HAVE BEEN CURSED BY SOME PEOPLE, HAVE ALREADY BEEN INTRODUCED IN THE MIDWEST AND NORTHERN AREAS WHERE THEY HAVE BECOME OVERNIGHT FAVORITES, EVERYWHERE THEY HAVE BEEN RELOCATED, THE RED TAILED GOODFID HAS MULTIPLIED IN ASTRONOMICAL FIGURES.

AS MENTIONED ABOVE, XENOTACA EISENI PROVIDES NO PARTICULAR PROBLEMS AS FAR AS PROPAGATION IS CONCERNED, IN THE DENVER AREA WHICH IS GREAT, SINCE IT IS AN EXCEPTIONALLY STRIKING SPECIES.

X. EISENI IS A MEMBER OF THE FAMILY GOODEIDAE, AN EXCLUSIVELY MEXICAN FAMILY. WITH THIS FAMILY, THE WATERS OF CENTRAL MEXICO HAVE SPANNED A MOST INTERESTING GROUP OF FISHES. UNLIKE OTHER LIVEBEARERS, THE GOODEIDAE NURTURE THE DEVELOPING EMBRYOS DIRECTLY. LITTLE YOLK IS PRESENT IN THE EGG. THIS TRAIT IS CHARACTERISTIC OF THE TRUE VIVIPAROUS FISHES. OTHER LIVEBEARERS ARE MORE CORRECTLY KNOWN AS BEING "POVIVIPAROUS". THE FEMALE EISENI IS NOT CAPABLE OF SUPER FERTILIZATION, THAT IS, THE FEMALE MUST BE FERTILIZED FOR EACH BROOD OF YOUNG. THIS IS ALL QUITE A SWITCH FROM THE POGONIIDAE IN WHICH THE FEMALE IS USED SIMPLY AS A REPOSITORY FOR DEVELOPING YOUNG WHICH, WITHOUT FURTHER FERTILIZATION, APPEAR EACH MONTH WITH REGULARITY FOR AS LONG AS SEVEN MONTHS.

WILE GOODFIDS ARE ALSO UNUSUAL IN VIEW OF THE FACT THAT THE FISH HAVE NO GONOPORIUM AS SUCH. THE FIRST 6 - 8 ANAL RAYS ARE SHORTENED AND CROWDED TOGETHER. THEY ARE SEPARATED BY A NOTCH IN THE ANAL FIN. THERE ARE NO SCALES IN THE ANAL AREA AND WITH THE THICKENED SKIN AND NOTCH, A SORT OF "POCKET" FOR SPERM TRANSFER IS FORMED. A SLEATH LEADING TO THE "POCKET" CAN BE SEEN IN THE BODY ITSELF.

THERE ARE SEVERAL OBSERVATIONS THE AUTHORS HAVE MADE CONCERNING THE REPRODUCTION OF X. EISENI. THESE SHOULD BE HELPFUL IN VIEW OF THE FACT THAT THERE IS LITTLE PRINTED INFORMATION ON X. EISENI. VARYING CONDITIONS HAVE BEEN SEEN HERE TO EISENI; THEY'VE DONE WELL IN NEARLY ALL CONDITIONS GIVEN THEM.

IN THE WILD, X. EISENI IS REPORTED TO LIVE IN CONDITIONS OF HIGH SUBMERGED VEGETATION. THIS WOULD SUGGEST THAT THE FISH HAVE ACCESS TO MUCH INSECT LARVAE AND CRUSTACEAN LIFE IN ITS DIET. REPORTEDLY, THE EISENI CONSUME A GREAT DEAL OF VEGETABLE MATTER IN THE WILD, BUT IN THE AQUARIUM THE SPECIES IS OMNIVOROUS. THE FISH EATS EVERYTHING OFFERED AND EATS NON-LIVING FOODS AS EAGERLY AS LIVING FOODS. VEGETABLE BASED FLAKE FOODS SUCH AS TO BE PREPARED TO MEAT BASED FLAKE FOODS. THEY WILL EAT PREPARED WHEAT-HEART MIXTURE WITH RELISH. FLAIN SPINACH AS A VEGETABLE SUBSTITUTE HAS NOT BEEN TRIED. RECENT REPORTS INDICATE THAT SPINACH CAUSES CALCIUM DEPOSITS IN THE KIDNEYS, ESPECIALLY IN LIVEBEARERS, LEADING TO THEIR DEATH. WE FEEL THE EVIDENCE IS SUFFICIENTLY STRONG TO CONSIDER TO SUPPORT THIS THEORY AND HAVE CHOSEN NOT TO EXPERIMENT BY USING IT ON THIS SPECIES.

X. EISENI HAS BEEN KEPT BY US IN WATER TEMPERATURES RANGING FROM 60 TO 80 DEGREES F, WITH NO APPARENT DIFFERENCE IN GROWTH OR REPRODUCTION RATE. HOWEVER, INDIVIDUALS DO SEX OUT AT A CHILLER SIZE WHEN KEPT WARMER. (70 - 80 DEGREES F.)

X. EISENI HAVE BEEN KEPT AT pH 6.6 TO 8.0 WITH NO REAL PROBLEMS. HOWEVER, WATER HARDNESS DOES SEEM TO MAKE A DIFFERENCE. WHEN YOUNG PAIRS OF EISENI WERE ACCLIMATED TO SOFT WATER CONDITIONS, (2 DH) THE FISHES COLORED UP AND DIED WITHIN TWO WEEKS.

NORMAL WATER CONDITIONS IN DENVER ARE 8 - 10 DH AND pH 7.4 (FROM THE TAP; WELL OR STREAM WATER HAS A pH OF 8.0 - 8.50 PERCENT SALT, (1 TSP/GAL.) IS USUALLY ADDED TO STABILIZE WATER CONDITIONS AND PREVENT PROTOZOAN ATTACKS BY INCREASING SALINE PRODUCTION.

AT THE TIME OF WRITING THE ONLY LOSS THAT HAS OCCURRED WAS THE DEATH OF A YOUNG FEMALE (BARELY 1 1/2" T.L.) WHO DIED SHORTLY AFTER GIVING BIRTH TO TWENTY FRY. THIS SEEMS FAIRLY COMMON WITH LIVEBEARER FEMALES. THEY SOMETIMES DIE AFTER DELIVERY FOR NO APPARENT REASON. WE SUSPECT THE LARGEST NUMBER OF FRY MAY HAVE BEEN A CONSEQUENCE OF THIS. PERHAPS IT IS SIMPLY THE LAW OF "SURVIVAL OF THE FITTEST".

THE COURSHIP ACTIVITY OF THIS VERY DISTINCTIVE LIVEBEARER HAS ALWAYS BEEN INITIATED BY THE MALE. WHEN APPROXIMATED, HE DARTS IN FRONT OF THE FEMALE AND STOPS HEAD AND TAIL WITH FINS ERRECT AND SPREAD WHILE "SPRINKLING" IN PLACE. IF THE FEMALE IS OF A MIND TO RECIPRODATE, SHE POSITIONS HERSELF HEAD DOWN AT A 90 DEGREE ANGLE AND RUFFELY SHAKES HER HEAD TO AND FRO LIKE A CAT SHAKING A NOSE. (SEE FIG. 2)

THE MALE THEN PROCEEDS TO CUT A DANCING FIGURE BY EXECUTING A SERIES OF FIGURE-EIGHTS IN FRONT OF HER WHILE INCLUDING HIS BODY TOWARDS HER AT AN OBLIQUE ANGLE. HE ADVANCES CLOSER TO HER HEAD WITH EACH CIRCLE AND AFTER COMPLETING FOUR SUCH CIRCLES THE FEMALE PICKS AT HIS VENT AREA AS HE TURNS AWAY - IN A MANNER REMINISCENT OF THE COURTSHIP OF THE GOURAMI. THE FEMALE PICKS AT THE MOUTH OF THE MALE'S ANAL FIN.

AFTER THIS INTERLUDE, THE FEMALE SWIMS OFF WITH THE MALE IN HOT PURSUIT. HE SWIMS IN FRONT OF HER, STOPS, AND THE WHOLE COURSHIP BEGINS AGAIN. THE RAPIDITY OF MOVEMENTS OF THESE COURTING FISH IS AMAZING. THESE FISH ARE QUITE FAST AT AND THIS OBSERVATION MAKES IT IMPOSSIBLE TO EVEN ATTEMPT TO DO LINE DRAWINGS.

DURING COURTSHIP, THE COLOURATION OF THE MALE HEIGHTENS CONSIDERABLY WITH THE TAIL AND CAUDAL PEDUNCLE BECOMING BRIGHT ORANGE-RED AND THE GREATER PORTION OF HIS BODY TURNING A BRIGHT BLUE-BLACK, PLOTTING OUT THE VENTRAL VISIBLE LINE. THE HEAD REMAINS THE GENERALLY BROWNISH COLOUR. THE AREA UNDER THE THROAT AND ALONG THE BODY IN THE PECTORAL AREA REMAINS THE USUAL OFF-WHITE WITH SOMETIMES A HINT OF YELLOW. THE FEMALE SHOWS A DULL ORANGE AREA IN THE TAIL AND A GREATLY INTENSIFIED COLOURATION OF THE BROWNISH LATERAL LINE. THE TAIL, VENTRAL AND ANAL FINS IN THE FEMALE AND MALE ARE YELLOW IN THE AREAS WHERE RED OR ORANGE IS NOT PRESENT. THE SCALES ON THE BODY ARE EDGED IN BROWN AND THIS BECOMES MORE PROMINENT DURING COURTSHIP. THE FEMALE'S BELLY AND THROAT REGIONS ARE OFFICE OFF-WHITE AND THE UNBORN YOUNG APPEAR THE SAME OPAQUE WHITE COLOUR WHEN VISIBLE THROUGH THE SIDES OF THE FEMALE. (SEE FIG. 3)

THE MALE CONTINUES TO DISPLAY TO THE FEMALE AS DESCRIBED ABOVE AND SHE RECIPROCATES IN RETURN. COURTSHIP ENDS WHEN SHE SIMPLY DECIDES ENOUGH IS ENOUGH AND SWIMS AWAY, IGNORING FURTHER ADVANCES FROM THE MALE.

ANY INTERUDERS INTO THE COURTSHIP ARE QUICKLY AND DECISIVELY ROUTED BY THE MALE, - ESPECIALLY IF THEY ARE YOUNGER OR LESS DOMINANT MALES. A YOUNGER FEMALE IS 'SLIGHTLY COURTED' AND THEN LEAVES THE ARENA, JUST AS IF SHE'D BEEN DUED TO DO SO. THE MALE IS NOT AVERSE TO COURTING TWO ADULT FEMALES AT ONE TIME, BUT USES HIS MOST CONVINCING DISPLAY ON THE MORE RECEPTIVE FEMALE.

SURPRISINGLY, THE MODIFIED PORTION OF THE ANAL FIN SWINGS FORWARD DURING THE COURTSHIP RITUAL, MUCH IN THE MANNER OF THE GONYPIDUM IF A GURRY OR SNOWTAIL, BUT LACKS THE GREAT RANGE OF MOVEMENT THESE LATTER TWO POSSESS. IN SWINGING FORWARD, THE ANAL FIN IS SPREAD LIKE A WING WITH AN UPWARD CURVE AND THE SHEATH LIKE AREA CAN BE SEEN ALONG THE BODY AND ANGLING INTO THE MODIFIED ANAL FIN. (SEE FIG. 2)

THE ONLY ACTIVITY OBSERVED THAT COULD EVEN POSSIBLY BE CONSIDERED MATING WAS SEEN WHEN THE FEMALE SWAM NEXT TO THE MALE, STILL AT A 90 DEGREE ANGLE AND WHILE HE WAS ROTATED TOWARDS HER. THIS POSITION WAS HELD FOR 1 TO 2 SECONDS THEN SHE WAS OFF AND RUNNING AGAIN. WHETHER OR NOT SPERM COULD BE TRANSFERRED THIS RAPIDLY AND IN THIS MANNER IS UNKNOWN, BUT IT WAS THE ONLY CLOSE CONTACT, OUTSIDE THE VENT PICKING DONE BY THE FEMALE.

THE UNUSUALNESS OF THIS LIVEBEARER IS MADE UP OF THREE THINGS: (1) THE MODIFIED ANAL FIN OF THE MALE; (2) THE METHOD OF NOURISHING THE YOUNG BY THE FEMALE; AND (3) THE NECESSITY OF IMPREGNATION OF THE FEMALE FOR EACH BATCH OF FRY. THE YOUNG ARE LITERALLY NOURISHED 'IN UTERO' BY A METHOD TERMED EXOPLOCELAE, WHICH SEEMS TO BE THE EQUIVALENT OF THIS METHOD FOUND IN MAMMALS, IN OTHER WORDS, BY PLACENTAL TRANSFER. THE BABIES ARE BORN TAIL FIRST AND UPSIDE DOWN WITH A CORD AND 'PLACENTA' ATTACHED. (SEE FIG. 4) THEY DROP THE CORD AND 'PLACENTA' SOMETIME DURING THE FIRST 24 HOURS AFTER BIRTH. NEAR THE END OF THE GESTATION PERIOD (6 WEEKS) [ISEN] FEMALES BECOME DITON AND BEAK SPLITTING NEAR THE TOP OF THE TANK IN THE FLOATING PLANT COVER. THEY ARE LEFT ALONE BY THEIR TANK MATES AT THIS STAGE. BY THIS TIME THEY APPEAR VERY 'SQUARE BODIED' AND OLDER FEMALES BECOME SO HUGE THEY APPEAR TO BE ON THE VERGE OF EXPLODING. (SEE FIG. 3) THE HEAD IS PIN SIZED IN COMPARISON WITH THE REST OF THE BODY AND THE GRAVID SPOT IS ENORMOUS. USUALLY, ONLY THE EYES OF THE FRY CAN BE SEEN IN SMALLER FEMALES BUT IN LARGER ONES THE FRY, FULLY DEVELOPED AND UNCOILED, CAN BE SEEN THROUGH THE TAUT SKIN ON THE SIDES OF THE FEMALE. THE FRY ARE HUGE AT BIRTH, AVERAGING 1/2 INCH AND ARE DELIVERED ONE AT A TIME. SOME FEMALES SEEM TO HAVE DIFFICULTY DELIVERING AND CAN BE SEEN TWITCHING, STRAINING AND HEAVING TO FORCE THE YOUNG TO DEPART.

THE FRY IMMEDIATELY HEAD FOR THE TOP COVER TO HIDE IN THE PLANTS OR DIVE FOR THE BOTTOM. THEY INSTINCTIVELY REFRAIN FROM TEMPTING 'MOMMA' WITH A HEAD BY THIS SEEKING FOR REFUGE. THEY ARE FULLY DEVELOPED AND QUITE CAPABLE OF MANAGING ON THEIR OWN. ANY FOOD OFFERED IS ACCEPTED AND GROWTH IS FAIRLY RAPID. YOUNG FEMALES SHOW THE GRAVID SPOT AT ONE MONTH AND CAN CONCEIVE BY TWO MONTHS, SOMETIMES DELIVERY IS ACCOMPLISHED BY TWO MONTHS! YOUNG FEMALES THIS SIZE RARELY HAVE MORE THAN 6 TO 8 FRY.

GRAVID FEMALES DO NOT LIKE BREEDING TRAPS AND APPEAR VERY UNCOMFORTABLE IN THEM. IF YOU HAVE A WELL PLANTED TANK, PREFERABLY A TANK IN WHICH THE FEMALE CAN BE KEPT ALONE, SHE'LL DELIVER WITH A MINIMUM OF FUSS AND FEV, IF ANY, EATEN YOUNG.

THE ADULTS, INCLUDING THE MALES, HAVE NEVER BEEN OBSERVED ACTIVELY PURSUING THE YOUNG WITH INTENT TO EAT. NONE OF THESE FISH HAVE EVEN BEEN KEPT IN A COMMUNITY SETTING SINCE RECOVERY OF FRY WAS VERY IMPORTANT AND MOST OF OUR COMMUNITY FISH WOULD EAT ADULTS AS WELL AS THE FRY.

[ISEN] SEEM TO BE ONE BIG HAPPY FAMILY WITH ALL SIZES LIVING PEACEFULLY TOGETHER. EQUAL SIZED MALES DO GET SCRAPPY WITH ONE ANOTHER OVER FEMALES, BUT HAVE NEVER INJURED EACH OTHER. EITHER THIS STRAIN IS VERY MEEK OR THE AGGRESSIVENESS REFERED TO BY DR. ROBERTA MILLER AND OTHERS DEVELOPES WITH INCREASED SIZE/AGE. THESE FISH GROW TO AT LEAST 3 INCHES TOTAL LENGTH. OUR LARGEST FEMALE IS NEARLY THREE INCHES WHILE THE MALE IS ABOUT 2 1/2 INCHES. (SHE IS ALSO DEAD, AS OF TONIGHT, HAVING JUST DELIVERED AGAIN WITHIN 24 HOURS. HER AGE WAS ROUGHLY 13 TO 14 MONTHS). THE MALE HAS NEVER BEEN ABUSIVE TOWARD FEMALES, EVEN WHEN A TEN GALLON TANK IN WHICH THEY ARE HOUSED CONTAINED FOUR MALES AND THREE FEMALES. IN THIS SETTING, HOWEVER, HE WAS A LITTLE ROUGH WITH THE OTHER MALES.

THE FIRST TWO DELIVERIES FROM OUR YOUNG FEMALES (WHEN ABOUT ONE INCH LONG) YIELDED TEN FRY FROM ONE AND ELEVEN FROM THE OTHER. OUR LARGEST FEMALE NOW DELIVERS BETWEEN 80 AND 75 YOUNG EVERY SIX WEEKS. IT SHOULD BE NOTED THAT THE FEMALES ARE ALWAYS MUCH LARGER THAN THE MALES, (1 1/2 INCHES) AND ARE MUCH DEEPER BODIED. (THE MALES PROBABLY REMAIN SMALLER BECAUSE (1) THEY NEED ~~XXXXXXXXXXXXXXXXXXXX~~ THE SMALLER SIZE TO PERFORM THEIR DYNAMASTICS DURING COURTSHIP TIME; OR (2) THEY BURN UP THE CALORIES NECESSARY FOR GROWTH CHASING THE FEMALES!!!).

IT IS STRIKING TO NOTE THE SIMILARITY OF APPEARANCE OF THE MOUTH OF X. [ISEN] TO THAT OF THE HOLLY AND OF THE BROWN LATERAL LINE TO THAT FOUND IN CICHLIDS.

THE VERY COMPLICATED COURTSHIP RITUAL OF THIS FISH HAS BEEN BRIEFLY COVERED HERE. WITH CONTINUED OBSERVATION IT IS HOPED THAT THE ACTUAL METHOD OF COPULATION CAN BE ASCERTAINED, SINCE AT THIS TIME IT STILL REMAINS A MYSTERY.

IF YOU WOULD LIKE A TRULY DIFFERENT, STRIKING AND PLEASANT LIVEBEARER - PICK UP A PAIR OF RED TAIL BOODELOS AND GET SET FOR MANY HOURS OF FASCINATING BEHAVIOUR OBSERVATIONS.

RIEDEL FLUTANS

THIS IS ONE OF THE OLDEST OF THE AQUARIUM PLANTS BUT IT IS STILL VERY POPULAR, ESPECIALLY AMONG LIVEBEARER ENTHUSIASTS, AS THE SWINEY, PALE GREEN CUSHIONS PROVIDE AN IDEAL HIDING PLACE FOR FRY.

CULTIVATION : WATER NOT TOO HARD - A WIDE TEMPERATURE RANGE IS TOLERATED, (66 - 86 F) BRIGHT, OVERHEAD DAYLIGHT IS THE BEST FORM OF LIGHTING BUT THIS PLANT WILL THRIVE UNDER ARTIFICIAL LIGHT.

PROPAGATION : BY FRAGMENTATION.



-----  
SIEGEMIA AURICULATA

ANOTHER FLOATING PLANT THAT IS SUITABLE IN LIVEBEARER TANKS AND THE FINE ROOTS HANGING DOWN FROM THE TOP OF THE WATER PROVIDE AN IDEAL REFUGE FOR FRY.

CULTIVATION : WATER NOT TOO HARD-TEMPERATURE RANGE 64 - 82F, PLENTY OF TOP LIGHT. (DAYLIGHT OR ARTIFICIAL)

PROPAGATION : BY DIVISION.



FIGURE 2 - THE USUAL START OF COURTSHIP POSITION OF THE MALE AND FEMALE.



FIGURE 3

HEAVILY GRAVID FEMALE. DELIVERY IMMINENT, THE FIRST FRY TO BE PRODUCED CAN ACTUALLY BE SEEN MOVING TOWARDS THE BIRTH CANAL.

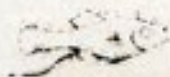


FIGURE 4 - NEWLY DELIVERED FRY, THE ATTACHED PLACENTA AND CORDS DROP OFF DURING THE FIRST 24 HOURS.

STEINER CROSSWORD.



THIS PUZZLE ORIGINATED IN THE U.S.A., BUT WITH THE HELP OF YOUR \*FISH ENCYCLOPEDIA\* AND AN ENGLISH DICTIONARY YOU SHOULD MANAGE. IN CASES WHERE THE WORD \*FISH\* IS USED, SUCH AS CATFISH, LEAVE OUT THE WORD AND ONLY WRITE 'CAT'. THE SAME APPLIES FOR 'BARR', 'SOURMUD' ETC.

ACROSS

- |   |                                   |   |
|---|-----------------------------------|---|
| 1. MONOCIRRHUS POLYACANTHUS             | 111. FLY ALONG                    | 8. NET (ANIS)                                   |
| 3. KIND OF FISH TRAP                    | 115. POP---                       | 10. BARRUS MELANAMPYX                           |
| 5. PANTOON BUONALZI                     | 116. BOY SCOUTS OF AMERICA (ABBR) | 12. FISH APPERATUS                              |
| 18. OFFICE OF NAVAL INTELLIGENCE (ABBR) | 121. NY --- END ONLY              | 14. HYPRESSORHYNCHON BIFASCIATUS                |
| 19# ONE (FRENCH)                        | 124. EITHER                       | 18. YOUNG FISH                                  |
| 27. SIGN FISH                           | 126. DIFFERENCE IN FISH           | 27. NEGATIVE REPLY                              |
| 32. HOCKEY ASSOCIATION                  | 132. TOO MUCH MOISTY (ABBR)       | 35. LAUGHTER NA---                              |
| 35. POECILIA RETICULATUS                | 135. TOGOTES JACULATOR            | 37. MACROPODUS OPERCULARIS                      |
| 40. ATOP                                | 142. ALRIGHT (SLANG)              | 39. AFTERNOON                                   |
| 43. FROM SIBERIAN MINES                 | 142. MORROW OR ----               | 50. DISTRESS CALL                               |
| 48. MORNING                             | 155. DEPARTED                     | 52. OPPOSITE OF STOOD                           |
| 51. ASTROMOTUS OCELLATUS                | 159. AMBASSIS CONCHENIUS          | 64. ATOLIDENS LATIFRONS                         |
| 57. BOAT PADDLE                         | 166. EXCLAMATION                  | 66. PRINCESS                                    |
| 60. OS (PLURAL)                         | 169. EDDIE CANTORS GIRL           | 65. CUBICLES                                    |
| 65. BARRUS EVERETTI                     | 172. --- ROGERS                   | 67. CLIRRY PERSON                               |
| 70. MYSTERY                             | 175. BRACHYDANTIO PERIO           | 69. LIZARD LIKE                                 |
| 76. ATTORNEY (ABBR)                     | 182. WEASAL LIKE                  | 73. VERB TO BE                                  |
| 78. PLURAL OF IS                        | 188. --- MYSELF & I               | 80. THEREFORE                                   |
| 81. CONSUMED.                           | 190. SYNCHOTIS                    | 96. OOH OPENINGS                                |
| 84. FINISHES                            | 194. POECILOBRYCON AURATUS        | 99. WHITE (LIVE FOOD)                           |
| 88. YES (SP)                            | 200. PERCENTAGE OF HYDROGEN, DOWN | 102. COLOURING                                  |
| 92. NOT MANY                            | 1. ACANTHOPSIS CHOIRORHYNCHUS     | 103. HERTHINTNS CYANORHYNCHUS                   |
| 95. GOD (LATIN)                         | 2. HALF OF EN                     | 105. 100H (ABBR)                                |
| 98. XIPH. HELLER)                       | 3. THREE TOED SLETH.              | 107. BARRUS                                     |
| 108. TIME TABLE (ABBR)                  | 5. HEMISPANUS CAUDOVIATTATUS      | 107. CALLICHTHYS CALLIBRITHYS TIBETICAN SPECTER |
|   | 7. ONE (ITALIAN)                  |   |



STINKER CROSSWORD CLUES CONT

- |                         |                        |                       |
|-------------------------|------------------------|-----------------------|
| 134. COMS ORY           | 155. PETROL (AMERICAN) | 171. HALF CIRCLE      |
| 135. BLEEDING (FISH)    | 156. BRIDGE            | 172. LET IT --        |
| 140. BARBUS CONCHONTUS  | 162. TOUR              | 183. SMALLEST STATE   |
| 145. TRICHOGASTER LEERI | 165. OBSERVE           | 184. ELEVATION (ABBV) |
| 148. GYMNOTUS CARAPE    | 167. FOUNDS            |                       |

ANSWERS IN NEXT ISSUE.

EXCHANGE COLUMN

MR. T. BUSFIELD,  
31, CONISTON ROAD,  
BARNDSLEY,  
571 1EL.

HAS - POECILIA VITIATA, POECILIA ORVATA, PHALYCHNUS ANATES & LIVIDITY MOLLIES.  
WANTS - XIPHO, XIPHOIDIN, XIPHO MONTEZUMAE OR ANY SPECIES OF ADV LIVEBEARER.

OPEN SHOW 1977.

SUNDAY MAY 1ST.

SCHEDULE OF CLASSES

SPECIAL CLASS - THREE MATCHED MALES OF ANY VARIETY OF LIVEBEARER.

- |                              |                          |
|------------------------------|--------------------------|
| Q. MALE SWORDTAILS           | S. MALE MULLY            |
| Qz. FEMALE SWORDTAILS        | Sz. FEMALE MULLY         |
| NO. BREEDING PAIRS SWORDTAIL | NS. BREEDING PAIRS MULLY |
| XQ. BREEDERS CLASS SWORDTAIL | XS. BREEDERS CLASS MULLY |
| R. MALE PLATY                | T. MALE ADV.             |
| Rz. FEMALE PLATY             | Tz. FEMALE ADV.          |
| NR. BREEDING PAIRS PLATY     | NT. BREEDING PAIRS ADV.  |
| XR. BREEDERS CLASS PLATY     | XT. BREEDERS CLASS ADV.  |
| O. (k l m n & p)             | MALE SWORDTAIL GUPPY     |
| O. (u - j & p - q)           | MALE SWORDTAIL MULLY     |
| P                            | FEMALE GUPPY             |
| N. O-P                       | BREEDING PAIRS GUPPY     |
| X. O-P                       | BREEDERS CLASS GUPPY     |

ADV - ANY LIVEBEARER OTHER THAN SWORDTAIL, PLATY, MULLY AND GUPPY.

CLASS O (k l m n & p) CONSISTS OF VENTRAL, DORSAL AND VENTRAL TAIL ONLY. ALL OTHER TAIL SHAPES TO BE ENTERED IN CLASS - (u - j & p - q)

WE HOPE THAT ALL OUR MEMBERS WILL SUPPORT US IN THIS VENTURE. A LIMITED AMOUNT OF ACCOMMODATION MAY BE AVAILABLE TO MEMBERS, (FURTHER DETAILS LATER) AND IF YOU CAN'T ATTEND, WE WISE MEMBERS TO RECEIVE YOUR FISH BY POST AND BENCH THEM FOR YOU. PRE-ENTRY WILL COST 5 PENCE PER EXHIBIT - ENTRIES RECEIVED ON DAY OF THE SHOW - 10 PENCE. ANY OVERSEAS ENTRIES WILL BE ADJUSTED AT THE SHOW.

A FULL SCHEDULE WILL BE SENT TO ALL MEMBERS IN THE FEBRUARY EDITION.

DON'T FORGET TO RENEW YOUR MEMBERSHIP FOR 1977 - SEND EITHER TO THE TREASURER MR. R. KERR, 57, HUNDRELLA TERRACE, HEATON, NEWCASTLE UPON TYNE; OR THE EDITOR.

