

Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Rec April 4 th Tenarment of Asimitates Washington, April 2 1877 Diljeo Enzelmann My dear Su', Four two recent letters were duly Eccesord. One of the pines of recognized as identical with that which I had rec from What and had called O. Balfouriana, which however was your I. aristates. I Suspected also that the other might be the one the English have called Balfouriand. I send you to day the only remaining Cone - it may be better than the other, I hope that Lieut. Wheeler will send a Botenist into that region this season and of so I will direct especial attention to these pines. As to the Oaks _ It is possible that the specimens of 2. Durandie which were in the Centennial Collection may have the acorns attached, but the Collection has not yet been opened out on

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account of want of room. The few specimens accessable have

Jon shall have a set of wood specimens of the Pines
abis and Oaks as full as I can make it.

Hoping to hear from you again soon

I can Jours turk,

Jos, Vasey

J. J. I have meanly recovered my former health—

Cannot however har as much study, nor as

much physical exercise.

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the acoust detached. I am inclined to consider it a good species. He have accessable only a few poor specimen of Buckley, 2. Sandabar, which have the lower surface of the leaf wooly. I think it to be Toney's oblogsifolia, but I can get hardly see the way to unite that with undulate. I should have studied our Oaks more carefully last fall if it had not been for the Centennial works, but I hope This fall to be able to do so very thoroughly. The forms of Trinos Abicolor are very puzzling. She real Primes is well marked by its thick bark, but I found one tree with scaly the back of White Oak, and with leaves of the form of Prinos but whitish tomeutore beneath, seeming to write the two species I made a spreial journey last fall to get specimus of that Carious Quereus with thick Varnished leaves and came to the Conclusion that it was a highind of alla & primos. The tree is intermediate in appearance with back close on the branches but on the body whitish and nearer alba. I, Trinos & 2. alba are growing on the same hill, but there is only the one hybrid tree. I will try to secure it in flower





Rec Manh 22 an April 9

UNIVERSITY OF CALIFORNIA, OAKLAND, MAR.CH 12, 1876.

DEAR DOCTOR,

YOUR CUPULIFEROUS LETTER CAME YESTERDAY, HAVING EVIT ENTLY BEEN SNOW-BOUND ON ITS WAY. I DEFERRED REPLYING TO YOUR FORMER ONE IN HOPES OF THE WEATHER ALLOWING ME TO GO A LITTLE FARTHER FROM OME TO LOOK INTO THE LESS USUAL FORMS OF OUR COMMON OAK HERE -- DOUBT-ESS THE "LIVE OAK" YOU INQUIRE FOR, AND THE ONLY ONE WITHIN MY IMME-TATE REACH. I HAVE TAKEN VIT TO BE Q. AGRIFOLIA; IT IS THE OAK OF OAK-LAND, OF ALL THE LEVEL LANDS AND MOST OF THE ISLANDS AND CANONS ON THE BAY, AND ALSO OF THE INTERIOR PLAINS, I. E. OF THE LOWER SACRAMENTO AND SAN JOAQUIN VALLEYS. OCCUPIES ALL THE NORTHWARD SLOPES OF THE CAN-ONS. LARGELY IN THE SHRUBBY FORM, MAKING A KIND OF THICKET OR CHAPPA-RAL WHERE THE GROUND IS POOR OR MUCH EXPOSED TO SUN & WIND. ON THE LOW GROUNDS IT FORMS STOUT TREES WITH SHORT TRUNK, SAY 6 TO TWELVE FEET ON N AN AVERAGE, DIVIDING INTO FEW, LONG CROOKED LIMBS BUT LITTLE ABOVE THE HORIZONTAL, WITH FOLIAGE CROWDED NEAR THE END OF THE LIMBS AND FORMING A FLATTENED OR HEMISPHERICAL TOP, SHARPLY DEFINED, AND RARELY OVER 24 TO 30 FEET HIGH. ALTOGETHER LOOKING MORE LIKE OLD ORCHARDS IN THE LAND-SCAPE, THAN LIKE AN OAK FOREST, THE TOPS OF THE ATLANTIC LIVE OAK LOOK MORE STRAGGLING, AND NOT SO MUCH AS IF THEY HAD BEEN TRIMMED WITH HEDGE SHEARS; OTHERWISE THEY ARE A GOOD DEAL ALIKE IN GENERAL HABIT. I IN-CLOSESOME OF THE LEAF FORMS. OLD TREES ARE MORE INCLINED TO HAVE THE ENTIREFORM; YOUNG ONES AS WELL AS THE SHRUBBY VARIETIES SOMETIMES SEEM TO ATTEMPT TO APPROAH Q. GARRYANA, THE BORDER BECOMING STRONGLY UNDU-LATE SO AS TO APPEAR LOBED AT FIRST SIGHT.

THE ONLY OTHER FORM SIMILAR TO THIS THE ONE OF WHICH I INCLOSE
A SPRIG. AT LEAST THEY SAY IT IS AN OAK; IT IS PLANTED FOR HEDGES; I
HAVE NEVER SEEN IT IN BLOOM OR FRUIT. -- THE ACORN OF THE LIVE OAK IS
VERY POINTEDLY CONICAL, THE CUP GUITE SHALLOW.

THE NEAREST PLACE TO THIS WHERE I HAVE SEEN G. GARRYANA, IS THE.

SONOMA VALLEY. THERE IT GROWS ALONGSIDE OF G. SONOMENSIS-- THE BLACK OAK

--AND WHAT I SUPPOSE TO BE G. LOBATA. THE LATTER IS DISTINGUISHABLE AT

A DISTANCE BY THE NUGE GALLSWITH WHICH IT IS MOSTLY BESET, AND I INSTING
TIVELY CALLED IT' POST OAK', WHICH IN HABIT IT MOST RESEMBLES. I DO

NOT REMEMBER SEEING ANY SHRUBBY FORM OF LOBATA IN THE VALLEY -- PERHAPS,

LIKE THE POST OAK, IT REQUIRES A PECULIAR SOIL TO PRODUCE THE DWARF.

ON THE WESTERN SLOPE OF THE SIERRA NEVADA, I HAVE SEEN WHAT I TAKE TO BE G. GARRYANA, FOORMING SHRUBS FROM 5 TO 8 FT. HIGH, SEEMINGLY ADULT.



OF V. RIPARIA IN THE SOUTH,

SACRAMENTO RIVER STEAMER, NONE HEREABOUTS! - IT HAS THE GENERAL HABIT

P. S. I HAVE SEEN THE NATIVE GRAPE OF CAL, ONLY FROM THE DECK OF A

THE DIO NOT HAVE SEEN THE NATIVE GRAPE OF CAL, ONLY FROM THE DECK OF A

THE DIO NOT LI ANA LI LAK CITIS ANA LI LAK TON DIO LI

THE DIO NOT LI ANA LI LAKE CITIS ANA LI LAKE STATE AND LI L

AS FOR G. DOUGLSII, I SUPPOSE IT IS THE ONE KNOWN HEREABOUTS AS ''CANYON OAK'', BECAUSE IT IS FOUND IN THE LARGER VALLEYS THAT TRAVERSE THE COAST RANGE. THE NEAREST POINT WHERE I KNOW IT TO GROW IS ABOUT 30 MILES SOUTH, ON THE NORTHWARD SLOPES OF ALAMEDA CAÑON, THROUGH WHICH THE C.P. R.R. RUNS.

YOU SEE I AM NEITHER WELL POSTED, NOR VERY WELL SITUATED FOR OBSER-- VING , THUS FAR LAST YEAR I COULD COLLECT AND OBSERVE ONLY PASSIM. THIS YEAR I HOPE TO HAVE AN OPPORTUNITY FOR MORE EXTENSIVE EXCURSIONS, AND WILL COLLECT WHEREVER I GO. BUT JAN WAITING ANXIOUSLY TO SEE THAT VOLUME ON THE BOTANY OF CAL., FOR THUS FAR I AM REDUCED TOWATSONS VOL. 5 8 ON THE BOTANY OF THE FORTIETH PARALLEL, WHICH I HAVE MYSELF; IN THE UNIV. LIBRARY THERE IS SCARCELY ANYTHING ON THE SUBJECT, AND OF COURSE I AM UNABLE TO DETERMINE SPECIFICALLY THE MOST COMMON PLANTS AROUND HERE. BOLANDER I KNOW PERSONALLY; BUT HE NEVER COMES OVER HERE, AND WHEN I GO TO THE CITY I AM USUALLY TOO MUCH PRESSED FOR TIME TO HUNT HIM UP. FOR THE PAST 4 YEARS, DURING WHECH HE WAS SUPIT OF PUBLIC INSTRUCTION, HE HAS DONE VERY LITTLE IN BOTANY; SO HE TOLD ME. THE DIFFICULTY OF COM-MUNICATION WITH SAN FRANCISCO IS AT PRESENT SO GREAT, THAT I HAVE NOT EVEN BECOME A MEMBER OF THE ACADEMY, BECAUSE I COULD NOT ATTEND ONE IN 20 OF ITS MEETINGS. IT TAKES 4 HOURS TO GO & COME. THIS WILL SOON BE IMP PROVED BY THE INTRODUCTION OF STEAM CARS BETWEEN BERKELEY : THE SITE OF THE UNIVERSITY : AND OAKLAND; WHEN THE TIME TO THE CITY WILL BE REDUCED TO HALF, AT PRESENT WE MISS EVERYTHING THAT GOES ON, UNLESS WE MAKE UP OUR MINDS TO STAY OVERNIGHT.

YOU ASK ABOUT MY EYE TROUBLE. THEY ARE SIMPLY IRRITATED -- NOTHING ELSE SEEMS TO BE THE MATTER. THE OCULISTS CAN IMAGINE NO CAUSE FOR ITEX-CEPT MY DOUBLE-SEEING, AND THE CONSEQUENT GREAT EFFORT AT CO-APTATION.
BUT I HAVE SEEN DOUBLE AS LONG AS I CAN REMEMBER; AND I FIND THAT THE USE OF PRISMATIC SPECTACLES DOES NOT RELIEVE ME AT ALL. QUERY: WILL THE STRABISMUS OPERATION BE ANY MORE EFFECTUAL? -- IT WAS THOUGHT THAT AN IMPROVEMENT IN MY GENERAL HEALTH WOULD LEAD TO THE SUBSIDENCE OF THIS IRRITATION; BUT IT CONTINUES JUST SO LONG AS I USE MY EYES FOR ANY CLOSE WORK, AND BECOMES INSENSIBLE WHENEVER, FOR SOME TIME, I USE THEM ONLY FOR GENERAL SEEING. THE SAME AS REGARDS SENSITIVENESS TO LIGHT.

WE ARE JUST NOW HAVING A HOT LEGISLATIVE FIGHT OVER THE POLICY OF
THE UNIVERSITY -- THE OFTEN REPEATED CONTEST BETWEEN THE IGNORANCE OF
AGRARIANISM AND THE CAUSE OF HIGHER EDUCATION. IF WE WIN -- AS I
TRUST WE WILL -- I WILL HAVE A FINE CHANCE TO WORK OUT A GREAT MANY INTERSTING QUESTIONS. IF WE LOSE, I MAY BE BACK TO THE STATES THIS SUMMER. SUCH IS THE LIFE OF A TEACHER OF SCIENCE IN THIS COUNTRY! - GREETINGS TO DORA! YOURS FAITHFULLY Lug. M. Higher



Rev Spril 4 th

UNIV. OF CAL. MARCH 26, 1876.

DEAR DOCTOR.

THE INCLOSED SPRIG OF OAK : 6. AGRIFOLIA? : MAY THROW SOME LIGHT ON A DIFFICULTY YOU MAY HAVE MET WITH IN C ACCOUNTING FOR DIFFERENCES IN THE TIME AND MODE OF FLORITION OF THE SPECIES. IN THE SPRIG I SENT YOU THE OTHER DAY, THE AMENTS CAME DIRECTLY OUT OF THE OLD WOOD, FROM A SESSILE BUD. THIS IS THE NORMAL CASE. JUST NOW, HOWEVER, THE MAJORITY OF OAKS IN THIS IMMEDIATE NEIGHBORHOOD IS FLOWERING FROM THIS YEARS SPROUTS, AND ANY ONE NOT KNOWING HISTORICALLY THE CAUSE WOULD BE APT TO DIAGNOSTICATE A SPECIFIC DIFFERENCE.


THE FACT IS, THAT THESE LATE-FLOWERING OAKS WERE TWICE DENUDED OF THEIRLEAVES LAST SEASON BY CATARPILLARS, AND BARELY MADE A RESPECTABLE GROWTH OF LEAVES BEFORE WINTER, THUS USING UP ALL THEIR AVAILABLE BUDS. SO THEY HAD TO TURN OUT SOME BRANCHES BEFORE THEY COULD BLOOM, AND THAT'S WHAT'S THE MATTER.

THE FACT THAT SEEDS FIND OPPORTUNITY TO GERMINATE, AND PLANTS TO
DEVELOP AND BLOOM IN DIFFERENT LOCALITIES AT ALMOST ANY SEASON OF THE
YEAR, COMOPLICATES VERY MUCH THE FORMS WHICH ONE AND THE SAME PLANT MAY
ASSUME IN THIS CONTRY. ANNUALS BECOME BIENNIALSWHEN SOWED AT ONE TIME,
AND DIE OUT AS THEY SHOULD WHEN BROUGHT INTO BLOOM A LITTLE SOONER. THE
ESCHSCHOLTZIAS NOW IN BLOOM ARE ABOUT 3 TIMES THE SIZE OF THOSETHAT
BLOOMED IN OCTOBER, FROM SEED THAT IS COMING UP ABOUT THIS TIME, AND
IS NOW HAVING ITS SECOND CROP OF FLOWERS; WHILE THE SEED THAT CAME UP
WHEN THE RAINS SETIN, WILL EXHAUST ITSELF WITHIN A FEW MONTHS FROM NOW.
SO WITH MIGNONETTE; SOME SOWN JUST A YEAR AGO, IS NOW HAVING ITS SECOND
FULL CROP OF FLOWERS.

YOURS FAITHFULLY

Eng. M. Ategary





Run April 29 May May 1

O A K L A N D, APRIL 21, 1876.

DEAR DOCTOR.

THE WOOD OF QUERCUS AGRIFOLIA IS GOOD FOR NOTHING
BUT FUEL, AND IT COSTS SO MUCH TO CUT IT UP INTO STOVE WOOD THAT IT
SCACELY WOULD PAY IN ANY COUNTRY WHERE TIMBER IS MORE ABUNDANT. LIKE
THE SOUTHERN LIVE OAK, IT WILL NEITHER SP LIT NOR SPLINTER EASILY; BUT IT
IS SO BRITTLE THAT IT IS BROKEN RATHER THAN CUT BY ANY BUT AN EXTREMELY
SHARP AXE. THEN IT USUALLY IS VERY KNOTTY AND CROOKED, SO THAT IT MUST
BE SAWED TO GET IT INTO ANY DEFINITE SHAPE.

I HAVE LATELY BEEN TO THRE OTHER SIDE OF THE RANGE, ON CARBUINES STRAIT. WHERE OTHER OAKS GROW; VIZ: THE BLACK OAK, ALREADY PAST ITS BLOOM AND IN FULL LEAF; SHOWS THERE NOMSIGNS OF A SHRUBBY FORM. THEN THE POST ONR WHITE OAK, WITH THE BIG GALLS, NOW BLACK WITH FUNGUS; THIS JUST IN BLOOM, LEAVES NOT FULLY GROWN, IN THE VALLEYS SOME VERY LARGE TREES, IN GENERAL SHAPE RESEMBLINGA Q. FALCATA WHEN GROWING ISOLATED. BUT CONSPICUOUSLY CHARACTERIZED BY LONG PENDULOUS BOUGHS, OFTEN HANG-ING DOWN VERTICALLY FOR SEVERAL YARDS FROM THE EXTREMITIES OF THE BRAN-CHES. THIS OCCURS ONLY ON LARGE TREES AND IN HABIT THESE ARE DECIDEDLY MORE LIKE POST THAN WHITE OAKS. ON THE HILLSIDESTHE SMALLER FORM OF Q. DOUGLSII IS ABUNDANT; 12 TO 15 FEET HIGH, BRANCHES LOW DOWN ON THE TRUNK, AND FULL OF GALLS, WHICH ARE SCARSELY SEEN ON THE LARGE TREES. THE LEAVES ON THESE SMALL OAKS WERE A GOOD DEAL MORE ADVANCED THAN ON THE LARGE ONES; I SAW NO FLOWERS ON THEM. MY IMPRESSION IS THATHERE AS ON THE SIERRAS, THIS OAK NEVER GROWS LARGE EXCEPT IN SHELTERED SPOTS, JUST AS IS THE CASE WITH G. AGRIFOLIA.

I SAW A FEW TREES OF THE "MONTAIN" OR "ROCK" OAK, WITH UNDULATE DENTATE LVS. RESEMBLING A LITTLE THOSE OF AGRIFOLIA'N SHAPE, BUT GRAYISH PULVERULENT, LIKEHTOSE OF Q. CINEREA. NOT IN BLOOM.

LATER IN THE SEASON I WILL GET YOU FULL GROWN LEAVES &C. OF ALL THESE FORMS.

THIS IS A VERY MAGNIFICENT COUNTRY JUST NOW -- SUCH MASSES OF FLOWERS ARE SEEN NOWHERE ELSE, UNLESS IN CHINA; OUR WESTERN PRAIRIES ARE TAME IN COMPARISON, YOU SEE THE GLEAM OF YELLOW, ORANGE, RED, PURPLE, BLUE OR WHITE, MILES AWAY, IN THE GENERAL GREEN OF THE GRASS; AND YOU SOON LEARN TO DISTINGUISH THE FIELDS OF ESCHSCHOLTZIA, RANUNCULUS, PORTULACCA, LUPIN ORHTOCARPUS, ANEMONE, &C.AS FAR AS YOU CAN SEE THEM. THE OLD COUNTRY



Jan Maria

TOO CONTRIBUTES LARGELY TO THE GAYETY OF COLORS, BY IMMENSE MASSES OF BRASSICA RAPA, SINAPIS NIGRA AND ESPECIALLY RAPHANUS SATIVUS, WHICH TOGETHER WITH THE TWO ERODIUMS FORM THE BULK OF COMMON WEEDS HERE. CURIOUS THAT THESE OLD- WORLD FORMS SHOULD FIND SUCH A PRE-EMINENTLY FAVORABLE CLIMATE OUT HERE! -- BUT THE FACT IS, THAT THIS SPRING REMINDS ME MORE OF GERMANY THAN ANY IEVER EXPERIENCED IN AMERICA. THEN THE SUMMER TRANSPORTS ME TO THE SHORES OF THE MEDITERRANEAN!

VALE -- GREETINGS TO DORA!

YOURS EVER

Eng. M. Allegarg

GEORGE EINEEL ARDEN



SPECIFIC IDENTITY OF G. COCCINEA AND TINCTORIA. BOTH ARE ABUNDANT ALLES OVER NORTH MISSI,; I HAVE LIVED IN THE WOODSFORMED BY THEM, O. FALCATA AND FERRUGINEA FOR 18 YEARS, AND HAVE FAILED TO FIND ANY TRANSTION FORMS BETWEEN ANY OF THESE. FROM CHILDHOOD UP. THEY ARE SO CONSISTENT-LY AND DECIDEDLY DISTINCT. THAT NO ONE AT ANY TIME FAILS TO DISTINGUISH THEM AT THE FIRST GLANCE, IN THE WOODS. THE ROUND, WHITE-BARKED SHOOTS OF COCCINEA. WITH LEAVESDEEPLY AND SHAPPLY SINUATE AND LOBES ACUTE, COM CONTRAST STRONGLY WITH THE DARK AND HABITUALLY RIBBED YOUNG SHOOTS OF Q. TINCTORIA, WITH DARK LEAVES SOMETIMES SO OBTUSELY LOBED AS TO AP-PEAR ONLY UNDULATE. THE TEXTURE OF THE LEAVES, TOO, IS ALTOGETHER DIF-FERBNT; THOSE OF COCC. ARE ALWAYS SOFTER AND LESS BRITTLE, AND OF NEA-LY THE SAME SHADE OF COLOR ABOVE AND BENEATH; THAT SHADE ALWAYS A GREAT DEAL LIGHTER THAN IN TINCTORIA, SO AS TO DISTINGUISH THE TREE AT A. LONG DISTANCE. IN AUTUMN THEY BECOME, NOT DARK VENOUUS BLOOD-RED, LIKE TINCE BUT A BRIGHT, ARTERIAL SCARLET, ESPECIALLY AT FIRST. THE TRUNKALIS OF A DIFFERENT HABIT, AND ITS THIN, SMOOTH, WHITE BARK SHINES TO A DISTANCE. THE WOOD IS QUITE DIFFERENT, MORE BRITTLE, LESS FIBROUS, SPLITS MUCH MORE EASILY THAN TINCT .. AND IS GREATLY INFERIOR TO THE LATTER BOTH AS FIRE-WOOD AND FOR ALMOST EVERY OTHER PURPOSE. THE ACORNS, SO VARIABLE IN 8. TINGTORIA. ARE ALWAYS EASILY IDENTIFIED IN COCC., BEING OF VERY CHAR. HASIT. IN SHORT, THE TWO RESEMBLE EACH OTHER, ONLY IN THE FORM OF THE LEAVES OF OLD TREES, AND DIFFER AS WIDELY IN EVERY OTHER RESPECT AS ALEA AND OBTUSILOBA. IN DRIED SPECIMENS, THE RESEMBLANCE IS GREATER; BUT Onkland Cal May 13 1876

WHILE I AM ON THE OAKS, I WANT TO SAY A WORD ABOUT THE SUPPOSED

0 1 2 3 4 5 6 7 8 9 10 MISSOURI BOTANICAL GARDEN

BUT ENOUGH OF BOTANY FOR THIS TIME. SOME OTHER, I WANT TO TELL YOU ABOUT THE REMARKABLY EUROPEAN FACIES OF OUR FLORA, WHICH I HAVE NEVER SEEN ANY VERY DEFINITE ALLUSION TO. STILL, BEFORE I FORGET IT, LET ME SAY THAT IF THE TWIG OF HEDGE 'OAK' I SENT YOU IS NOT 8. CHRYSOLEPIS, IT IS PROBABLY BERBERIS AQUIFOLIA, WHICH IS USED FOR HEDGING.

NOW FOR SOME DOMESTIC NEWS. AFTER MATURE DELIBERATION, AND NOT-WITHSTANDING THE SEVERE LEGISLATIVE FIGHT FROM WHICH WE HAVE JUST EMER-GED: ALITTLE THE WORSE FOR FUNDS, BUT NOT BADLY HURT: I HAVE CONCLU-DED TO GO INTO THE VENTURE OF BUILDING ME A HOUSE AND TRYING TO HAVE A LOCAL HABITATION OF MY OWN. YOU MAY TAKE THIS AS AN EARNEST THAT I LIKE

MISSOURI BOTANICAL GARDEN
GE RGE ENGELMANN PAPERS

BUT I EXPECT I AM BORING YOU NOW -
"ABER WESSEN DAS GEFAESS IST GEFUELLT,

DAVON ES SPRUDELT UND UEBBROUTLY:"

SO I'LL SAY A WORD OR TWO ABOUT THE OAKS - QUOD ERAT DEMONSTRANDUM.

I INCLOSE THE FLOWERS OF WHAT I NOW TAKE TO BE Q. LOBATA, THE WHIT OAK SO CALLED HEREABOUTS, WITH THE PENDULOUS BRANCHES, AND WHEREOF THE YOUNGER TREES ARE SO INFESTED WITH HUGE GALLS. ALSO A LEAF OF Q. SONO MENSIS, THE BLACK OAK, OF WHICH I HAVE NO FLOWERS. ALSO A FLOWERING TWIG OF A VARIETY OF Q. AGRIFOLIA, WITH STRAIGHT AND SLENDER BRANCHES A YOUNG TREE. GROWING IN A COWPEN, & VERY LUXURIANT. OF THE MOUNTAIN



Aug Jan 17 1878

OAKLANNO, JULY 9, 1876.

DEAR DOCTOR.

TO-DAY I WENT TO LOOK AFTER THE SHRUBBY Q. WISLIZENI, ON "GRIZZLY PEAK" : 1900 FT .: , NOT FAR FROM HERE. HAPPENING TO FIND A BUSH OF REAL AGRIFOLIA AMONG THE PREVALENT WISLIZENI. I WAS ABLE TO MAKE CLOSE COMPARISON, AND IN CONSEQUENCE GIVE IT UP -- IT IS AS GOOD A SPECIES AS MOST OF THE OAKS, I RECKON. NOW AS FOR THE POINTS OF DIST TINCTION IN THE LEAF, I FIND THOSE OF AGRIFOLIA MUCH MORE COMMONLY AND COMPLETELY CUPPED THAN IN THE OTHER, WHERE THEY ARE MORE GENERALLY RE-FLEXED ALONG THE LATERAL MARGIN, BUT SO AS TO UNROLL PERFECTLY FLAT; WHEREAS IN AGR. THEY BECOME CRUMPLED IN PRESSING. BEING CUPPED LIKE A SPOON, IN WISLIZENI THERE IS A WELL-DEFINED MIDRIB THROUGHOUT THE LENGTH, AND THE VEINLETS ARE PARALLEL; IN AGA. THE MIRIB USUALLY FORKS ABOVE. AND THE BRANCHES CURVE AND FORK THEMSELVES. THAT IS IN WHAT ONE WOULD CALL "CHARACTERISTIC SPECIMENS"; THERE ARE THOSE IN WHICH THESE MARKS FAIL BUT THE LOWER SURFACE OF THE LEAF HAS ONE UNFAILING MARK, NI FALLOR, VIZ: THAT THE MIDRIB AND LARGER : PRIMARY: VEINS, BESIDES BEING MUCH LESS PROMINENT THAN IN AGR., AND ALMOST FLATTENED DOWN, ARE -BORDERED BY A NARROW BAND OF PARENCHYMA FORMING A KIND OF RAISED MARGIN. AND THUS PRODUCING THAT PECULIAR APPEARANCE WHICH, AS KELLOGG SAYS, IS "EASIER SEEN THAN DESCRIBED." THE ACORNS, TOO, EVEN IN THEIR PRESENT UNDEVELOPED CONDITION, ARE VERY DIFFERENT -- MUCH MORE IMMERSED; BUT I COULD NOT HELP REMARKING AGAIN THE GREAT RARITY OF LAST YEARS ACORNS. AS COMPARED WITH THOSE OF THIS YEAR, AND THE FACT THAT SOME OF THE LAT-TER ARE SO LARGE THAT ANY ONE WOULD THINK THEY WERE GO NG TO ROPEN THIS YEAR, WHILE OTHERS ARE FAR BEHIND. I WILL WATCH SOME OF THESE AND SEE IF THEY ARE NOT OCCASIONALLY RIPENED ANNUALLY.

I FOUND NO FRUIT ON THE SHRUBBY AGRIFOLIA UP THERE.

AS FOR THE ABNORMALLY BIENNIAL ACORNS OF THE LATTER, I TOLD YOU IN A P. C. THAT THEY ARE FALLING OFF, ALTHOUGH THEY HAVE GROWN UP TO A FEW DAYS AGO, AN SOME ARE GROWING YET, BUT DO NOT SEEM LIKELY TO RIPEN, AS THE CUP APPEARS TO BE RUNNING AHEAD OF THE ACORN, AND CURLS OBER IT IN AN UNNATURAL WAY. YOU WILL SEE THAT IN THE SPECIMENS I HAVE COLLECTED. I NOW NOTICE THAT THESE IMMATURE, CURLED-IN CUPS ARE QUITE COMMONON THE TREES HERE, A FEW B ING DEVELOPED A GOOD DEAL FARTHER THAN THOSE I HAVE OBSEVED, SO THAT I CANNOT HELP THINKING THAT AFTER ALL, THESE ABNORMAL BIENNIAL CROPS DO SOMETIMES MATURE. THE CATRPILLAR, HOWEVER, HAS DONE SO LITTLE AMGE THIS SEASON, THAT I WILL NOT BE ABLE TO VERIFY THE MATTER HERE NEXT SEAON. BEYOND THE RANGE THEY HAVE HAD BETTER LUCK, AND I WILL LOOK OUT FOR FACTS THERE.



I HAVE READ YOUR OAK PAPER FEELINGLY AND WITH GREAT INTEREST. I AM GLAD TO SEE YOU LEFT THE WAY OPEN FOR A DISTINCTION BETWEEN 8. TINCT. AND COCCINEA, FOR THEY ARE MOST ASSURBOLY AS MUCH SO AS ANY TWO ALLIED-ONES CAN BE. I SPOKE TO KELLOGG ABOUT IT THE OTHER DAY, AND HE LAUGHED AND SAID: "THAT IS ONE OF THE MISTAKES THAT NO ONE WOULD THINK OF MAKING IN THE FIELD! -- WHY. THERE ISN'T A LITTLE NIGGER BOY DOES NOT KNOW ONE FROM THE OTHER, AND THAT THE COCCINEA SPLITS TWICE AS EASILY AND MAKES -A POORER FIRE. " AS I SAID BEFORE, YOU CAN DISTINGUISH THE TREE A MILE AWAY, BY ITS LIGHT GREEN FOLIAGE, AND TALL BLUIGH-GRAY TRUNK; AND WHILE FREGUENTLY ASSOCIATED WITH TINCTORIA, IT NEVERTHELESS INVARIABLY DENOTES A POORER, LIGHT SOIL WHERE IT PREVAILS, AND ITS PRESENCE IS A DEPRESSING FACTOR IN THE PRICE OF LAND; SO THAT ITS SPECIFIC CHARACTER IS ACTUALLY VOUCHED FOR BY THAT ULTIMA RATIO, THE LAND-OWNER'S POCKETS. I REMEMBER ONLY ONE CASE IN WHICH I FELT A DOUBT AS TO WHICH OF THE TWO I HAD BE-FORE ME; IT WAS IN ABOTTOM OF SOUTH MISSI., DENSELY WOODED, SO THAT ALL TREES HAD TALL TRUNKS, WITH SCARCELY ANY BORKE. ITS BARK WAS TOO YELLOW FOR COCCINEA, BUT ITS LEAVES HAD THE PECULIAR SUB-GLABROUS LOWER SURFACE WHICH I CONSIDER AS ONE OF THE SURE MARKS OF COCC.; MOREOVER, THE HABI-TAT WAS ONE IN WHICH COCC. IS NEVER FOUND IN MISSI. BOTH OAKS GREW ON THE ADJOINING UPLANDS, AND I TOOK IT FOR A HYBRID.

I AM VERY MUCH INTERESTED ABOUT Q. LAURIFOLIA. I NEVER COULD MAKE UP MY MIND TO CONSIDERING ALL THESE FORMS AS SPORTS OR HYBRIDS OF AQUATICA; THEY ARE OF TOO FREQUENT AND EXTENSIVE OCCURRENCE. STILL, THE YOUNG SHOOTS OF AQUATICA DO NOT CONFORM TO YOUR RULE THAT ALL LEAVES ARE DOBTUSE OR CUNEATE, AND THEY HAVE FORMS WHICH FOILED MY EFFORTS TO DISTINGISH THEM FROM WHAT I SUPPOSED OUGHT TO BE LAURIFOLIA MICH. I HAVE YWO SPECIMENS LABELED BY YOU "LAURIFOLIA", AS UNLIKE AS POSSIBLE -- THE ONE FROM THE SEA-SHORE, AMONG Q. VIRENS, WHICH YOU MENTION; THE OTHE CORRESPONDING TO THE FIGURE OF HETEROPHYLLA.

P. S. JAN. 8, 1877. I THINK THERE MUST BE A MISTAKE ABOUT THE
LOCALITY OF YOUR Q. VIRENS FROM KEMPER CO., MISS. A PORTION OF THAT
SAME TREE, AT LEAST, HAD LEAVES DISTINCTLY LOBED; AND THERE IS NO Q. VIR.
VIRENS EVEN 100 MILES FARTHER SOUTH OF KEMPER. BUT ON THE SEA-SHORE
THERE DO SEEM TO ME TO BE TWO VARIETIES AT LEAST OF VIRENS, 'SO DISTINCT'
IN MABIT THAT I COULD NEVER MAKE UP MY MIND THAT THEY WEBENNOTED ISTINCT.
SPECIES. ONE HAS SMALL, CORTACEOUS, USUALLY CUPPED LEAVES; THE OTHER
MIGHT BE TAKEN FOR Q. CINEREA VAR., THE LEAVES BEING LARGER, NOT TRULY
CORTACEOUS, AND THE WHOLE HABIT OF THE TREE MORE LIKE AQUATICA THAN VIRENS. PROBABLY MORE HYBRID COMPLICATIONS! I HAVE A MIND TO SEND YOU
THOSE MISS. SPECIMENS AGAIN FOR FARHTER COMPARISON.

MISSOURI BOTAMICAL GARDEN GEORGE ENGELMANN PAPERS



Aur Febr 21 Am Janu Ly Tavesley Georgetonin 62 0000 15' Fely 1880 De Grigelmann Strans Mo Demoli my frend relative Mu 26 M Romenel. I sho you some young him outs (Winnes) à since acoms ni vandons stages of divilipment The his or their smallest tittes I think are from across dropped This fall, The larger a year old The othe paper parcels contain their Fibro with the billite chief, another a single tuber reluch I have had suskinded ma bottle for some time ous tuning green Abutting out leaves, unfulmately the acous how bein woken from there the thus paper hus two acurs with the radiely just begun to enlarge I reget I comed not find any une advanced, sisc mens ago I san himon as lange his a guill.

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BOTANICAL
GARDEN

always hard altereture to the grown ation of seed of the growth of heis, can guite familia with mist of our firest hus, My attention mas furt called to these wan tothe by seine sinde little pregert die reat Them, I sint since to Dr. h. H. Gibts of Chaeliston, he renew-withing about them This fall there was an incure cuts I acome of mad gathering them I had my bels, our that way noticed the sulling of The pasiele, then the short from the tites to aguin suit since to Insulters, but they and untruberest hum nueles after I sent some suite à drawne to Mr Raienel, & other to Mr. Mishan they were greatly interested the M is making inicheatino, it is a very commes thing other mue ommes that it ellowed have escaped The mbre I Manust, The the outs Mas many vanishes in my your then are serval. such le ren star to gue ym any mpunatur d'ean, Joursleshelf M. Mazych MISSOURI BOTANICAL GARDEN GEORGE ENGELMANN PACENS



MIMMINICALIAN M Ongelmann a failure on the part i, of the trains I did not get off this evening as Despected However this gives me more time le to botanise in the vicinity of Austrin, le you have very likely by this time, keewel ou the green specimens of Jak sent you from here some days since Since sending these Shave been out a good deal and &

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have found that littel Quercus Durandu' abund aut in every direction, especially on the South side of the Colorado River belong rich limestone C Slopes in just such soil as our northern papar would preper At reews on this ise t the Austin Side of the S river in the very town itself but not exactly in what would be considered the riverbottom & suppose these town trees are what Mrs Sough saw and being abused by arrivals, they give one a poor idlea

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have not yet seen it near Post oaks or even er on what would be re considere fort out land The appearance of the trunk, branches ete is very much like e that of a white oak 5 saffing in thowood about St. Louis, I have seen no white out here unless this may yet Turn out to be a form of Quereus alba de which does not seem! probably, I do not think I it a hybrid, it is los uniform in appearance and too Common Attent for that,

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Besides & don't see what it has a chance To Oros 8 with unless it be Lucreus Omoryin which occasionally grows with it at least & take anoak which & find with it Sometimes ford Emorgin, but in this I may be mistaken phave seewed specimens from 7 all the different oaks here except Black Jack which seems to be less variable Thou most of thoothers I go from here to-morrow to Hallas which will be

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