INTERNATIONAL MILITARY TRIBUNAL II: THE FAR EAST

The United States of America et al

versus

ARAKI Dadao et al

AFF IDAV IT

Deposent TAKAMURA : wao

I, TAKAMURA Iwao, being duly sworn as per statement given below in conformity with formlities used in Japan, do hereby depose as per separate statement.

OATH

I hereby make oath that, by dictation of my conscience, Thave stated all truths, without secretly concealing anything whatsoever and without deliberately adding anything whatsoever.

Signature and seal : "I'me Calcamura.

TTMESS

Tokyo, February 2, 1947

This is to certify that Deposent TAKATURA Frao has taken an oath and put his signature and se 1 in my presence.

Titness

Kolifu Tokoroyama

Chief of Criminal Identification Section Metropolitan Police Board.

Def. Doc. # 400 Jam a resident of Tokyo, and my age is 38. I have been attached to the Criminal Identification Section of the Penal Affairs Department of the Tokyo Metropolitan Police Board since 1929, where my duties are the examination of handwriting and seals. Puring the said period, qualified myself in the subject of identification of handwriting through almost whoustive studies of Chinese and Japanose books on calligraphy, and examination and comparison of innumerable actual samples of Chinese and Jacanese writing. In connection with my official duties in the Metropolitan Police Board over the past seventeen years T have testified in the Japanese courts as an expert on calligraphy concerning some thirty trial cases; I have worked on some 1,500-1,600 investigation cases for the Metropolita Police Board, including 110 for the Ministry of Education, Home Ministry and other government departments and private interests; and in the course of this work have examined an estimated 200,000 separate specimens of Chinese and Japanese handwriting, using the customary methods of visual and microscopic and other scientific examinations. I am the author of a book, Shorui Kenteiho (Methods of Judging Documents) on the subject, which was printed in 1943 for circulation among lawenforcement agencies, though not published. This work was the first of its kind to appear in Japan, and as the only such work yet in existence may be considered the standard work on the subject. T confirm hereby that the following is the text of my evidence to be given to the International Military Tribunal for the Far East. Signod 1947. Dated

Def. Doc. # 400 above specimens of hand writing. Conclusion It is my determination as a result of my examination of the three specimens of handwriting that Exhibit 278 was written by the same person who wrote Exhibit 282, the Bignatures and the Autograph, although it is recognized that the fourteen characters of the endorsement on the lower left-hand corner of Exhibit 278 were written by another hand. III Roasons (A) General Observations on C. ligraphy 'e daily experience and observe that document written by one and the same person, on paper of the same kind and with the same brush and India ink, and according to the same style of penmenship, not only vary in their form and force of the brush, but even the same ideograph so written by him at different times presents a greatly varied appearance in force of the brush, arrangement of strokes and inclination. And in case these objective c nditions are different, handwriting will be subject to an even greater variation. But especially, the mental condition of the writer at the time of writing -- such subjective cases as exhilaration, despondency, enthusiasm, indifference, joy or anger, pain or pleasure, fatigue, intoxicotion, picty, moloncholy, trickishness----ill produce a great effect on handwriting, then a triter, for instance, has deliberately altered the shape of ideographs and use of the pen, or imitated another's hand with the desire of disguising his orn style or calligraphic features, it will require a good doal of circumspection on the part of an examiner to determine the truth, still more so if the riter is experienced and

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proficient in penmanship.

In ordinary circumstate with the lapse of time, by

In ordinary circumstances, a person's penmanship improves with the lapse of time, but physical disorders will make the pen lime and halt. The mental state of a writer at the time of writing produces, as has been said, an effect on his writing. Again, if he intends to disguise his hand, he can of course write a document which will appear to a cursory observation like the handwriting of another person.

To judge writings to be the production of different hands on considerations of this sort, however, is a mistake committed only by those who have little knowledge of penmanship, or whose study of the science is inadequate. No commoissour who has studied the art of handwriting-examination scientifically, and who has had wide experience, will fall into this sort of error.

Not fithstanding all outrard sceming, the permanship of every person is the crystallization of his long precise, and invariably has an individuality which others will find it difficult to imitate. Change your style as you please, and you will still find in your autograph the traits, wholly or in part, of your latent individuality of permanship unconsciously acquired by daily practice. If a handwriting is closely examined and care fully studied with these criteria in mind, it is by no means impossible for one bringing expert knowledge to bear to determine whether it is genuine, even if the writer has attempted to deceive. It is with these considerations in mand that it set to onk on examination of the specimens submitted for my opinion.

(B) Generaly View of the Specimens

I find that Exhibit 278 is a letter of 181 characters
written in "gyosho" (a free style of writing intermediate
between "kaisho", the square style, and "sosho", running style)

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with a brush on yellow silky cloth lined with thin paper.

Exhibit 282 is a print on art paper inserted between pages 448 and 449 of a Reginal d Johnston's book. The calligraphy, being printed by fine half-tone photogravure, appears in thit characters, on a black background in the shape of a folding fan (it is noted that the autograph writing was intagliced on a stone, on which paper was placed and impressions taken by means of India ink.

On examination of these tro iscuments I have found that the force of the brush, the manner of use of the brush and the appearance of the ideographs in them are all similar. In other words, I have noted in these documents an altogether common feature in the use of the brush, which was easy, unfettered and fluent. It is also apparent that in the writing of these documents brushes of nearly the same size were used to expend a proper quantity of inc, and that the speed of the brush was about the same in the two cases.

The Autograph consists of three sheets of Oriental paper ruled in red, containing characters written mainly in the "kaisho" style with occasional mixture of "gyosho" style. It is observable, from the boldness of the characters, that ink was used more freely in this document that in the others.

As compared with Exhibit 282, which P'u-yi recognized as his own handwriting, this Autograph appears at a glance to differ in the manner of use of the brush as well as in the appearance of the character. But this difference may be attributed mainly to the change in style occasioned by the influence of the author's mental state at the moment. In this connection, it must be pointed out that in the course of execution of the Autograph, P'u-yi repeatedly refused to write in the "gyosho" style on the ground that he was incapable of doing so. Then, however, he began spasmodically to mix in the "gyosho" style, his permanship was decidedly un-

natural and clumsy. Notody can doubt, on the other hand, that
the standing of a Chinese or Menchu Emperor necessitated him to
study deeply into the calligraph of all styles and that Exhibit
282 and the Signatures, admitted as genuine by P'u-yi himself,
were both executed in a boutiful and masterly style of "gyoshe".
Needless to say that such a contradiction is the result of an
attemp to disguise his hand. And yet, the ink-marks clearly
show that in both cases, the brash followed a similar course
in writing, and the same style of penmanship prevails throughout
all the specimens. The specific methods employed in the determination of their identity will be shown hereunder.

(C) Methods of Fxamination

To begin with, selient features of penmanship, such as commencement of a stroke, and of a stroke, stop, brushing up, and vavoring of aline, were scrupulously examined with a microscope. hen, ideographs in those documents were photographed in a magnified form, and the magnified photographs of characters were dissected into components, namely, the left-hand radical and the body, and these components were examined in comparison with the correspondign parts of the mictures of other characters. An ideograph in one document, likewise calarged, was further dissected into several lines and dats, so as to compare with those of characters in the other documents. The process of this comparative study is as follows:

Def. Doc. # 400 (a) Photographs taken for Examination Turboses 1. Exhibit 278 was photographed to make Figure 1. Exhibit 282 was photographed to make Figure 2. The first part of the "utograph was photographed to make Figure 3. . The second part of the Autograph was photographed to make Figure 4. The third part of the "utograph as photographed to make Figure 5. 6. The ideo raphs | | and | | both in Exhibit 278, and in Exhibit 282, 23/3 magnified by photography and mounted together to make Figure 6. 7. The ideographs | F in Exhibit 278 and | in Exhibit 282 were magnified by photography and mounted together to make Figure 7. The ideographs 7, in Erhibit 278 and Hij in Exhibit Figure 3. 9. The ideographs 12 and 12, both in Exhibit 278 and 12 in Exhibit 232 were magnified by photography and mounted together to make Figure 9. 10. The ideographs 点 in Txhibit 273 and 为 in Exhibit 232 were magnified by photography and mounted together to make Figure 10. 11. The ideographs in his and 4/2, all in Exhibit 278 and Pand , both in Exhibit 282 were magnified by photography and mounted together to make Figure 11. 12. The ideographs 3 in Exhibit 278 and 42 in Exhibit 282 were magnified by photography and mounted together to make Figure 1%. 13. The ideographs 注 in Exhibit 278 and 追 in Exhibit 282 ere magnified by photography and mounted together to make Figure 13. - 3 -

Def. Loc. # 400 The ideographs in Exhibit 278 and in Exhibit 282 were magnified by photography and mounted together to make ligure 14.

15. The ideographs A, H and E in Exhibit 273 and A, and in Exhibit 282 were m gnified by photography and mounted together to make Figure 15.

16. The ideographs , and in whibit 278 and in Exhibit 282 were m gnified by photography and mounted together to make Figure 16.

17. The ideographs [2] and [3] in Exhibit 278 and [4] and [5] in Exhibit 282 were magnified by photography and mounted together to make Figure 17.

18. The ideographs [] and [] in Exhibit 278 and [] and [] in Txhibit 282 were magnified by photography and mounted together to make Figure 18.

19. The ideographs 7% in Exhibit 278 and 5 in Exhibit 282 were magnified by photography and mounted together to make Figure 19.

20. The ideographs , if and in Exhibit 278 and in Exhibit 282 ere magnified by photography and mounted together to make Figure 20.

21. The ideographs in Exhibit 278 and in the utograph were magnified by photography and mounted together to make Figure 21.

22. The ideographs in Exhi it 278 and in the autograph were magnified by photography and mounted together to make Figure 22.

23. The ideographs in Exhibit 278 and in Exhibit 27

24. The ideographs 1 in Tahibit 278 and 1 in Exhibit 282, and 1 and 1 in the dutograph were magnified by photography and mounted together to make Figure 24.

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25. The ideographs in Exhibit 278 and in Exhibit 282 were magnified by photography and mounted together to make Figure 25.

26. The ideographs 2, and in Exhibit 278 and in the Signature of Exhibit 285 were magnified by photography and mounted together to make Figure 26.

- (b) Eramination by Sectional Dissection of Theographs
- (1) If the radical appearing in the ideographs and it in Exhibit 275 is compared with the ideograph in Exhibit 282 (vide Figure 6), it will be noticed that:

The initial touch of the first stroke, being very slender, makes the appearance of (vide Figure 6,A); the second stroke was written by gradually increasing the pressure of the brush from the upper left hand to the lover right hand (B); then diminishing the pressure and brushing up leftward, and increasing the pressure somewhat downward, was the third stroke given (C); then the pressure was once more diminished in carrying the brush toward the end of the second stroke (B), and on entering upon the fourth stroke (D), the pressure was increased on the lower right side the brush then proceeded downward in that condition but it that straight line is closely examined, it may be perceived that the brush first turned rather to the left (C, H), are series of dexterous changes in penmanship (vide D, E,F,G,H).

The special features mentioned in the above are common to both Exhibits.

(2) If the left-s de radical γ of the ideograph in Exhibit 278 is compared with that of the ideograph in Exhibit 282 (vide Figure 7), it will be seen that:

The junction from the first stroke to the second is rather roundish (A) the pressure which had been increased at the

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second stroke (B) was gradually diminished till the brush was
somewhat inclined (C); on entering upon the third stroke the
pressure was again increased and it ended with a brushing up (D)
The two documents resemble each other in all these points.

However, it must be taken into consideration that such a coincidence sometimes or urs when the handwriting of a person by chance happens to be most like to that of another person, and similarity of shape alone cannot establish the fact that the two documents were written by one person.

(3) If the top radical 2, separated from the ideograph in Exhibit 278 is compared with 2 of theideograph in Exhibit 282 (vide Figure 3), it may be observed that:

The initial touch of the first stroke is extremely thin (A); goinf from the right to the left and then returning to the right just before finishing the stroke (B), the brush drew a roundish shape (A, B) then gradually in creasing the pressure and then diminishing its pressure, the brush truened upward for the second stroke, and formed the junction between the two strokes as if it were intended for a circle (B,C); increasing its pressure again, the brush ran to the lower right hand and next moved to the lower left side.

In all this the two documents are the same (A, B, C, D, E, F, G). In this penamanship the thinness of the initial stroke (A) and the roundish junction of the first stroke with the second (B-C line) make the peculiar style of the writer.

(4) hen the body 文 of the ideographs 美 and 政 in Exhibit 278 is examined in comparison with the body 文 of the ideograph 技 in Exhibit 282 (vide Figure 9), it will be seen that:

The initial touch of the first stroke goes toward the lower right (A,B) and then to the lower left hand (B,C); the second stroke makes the appearance of an "S" flattened rightward and placed horizontally (C, D); the third stroke started from the middle part (E) of the second stroke (C-D line). If the same spots of the ideographs if and it in Exhibit 278

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are exaggerated, it will be observed that the writer has his
habitual style of penmanship.

To be more particular, the line, st rting from the middle part of the second stroke, goes down most slightly to the lower right side, then slightly leftward, and again rightward and finally to the lower left hand once more (E, F, G); next the initial touch of the fourth stroke was begun horizontally (J,J), and the brush, having gone to the lower right hand, gently proceeded farther to the right side with its pressure increased.

The above fertures are common to Exhibits 278 and 282.

(5) Then the body | of the ideograph | in Exhibit 278 is examined in comparison with the body | of the ideograph in Exhibit 282 (vide Figure 10), it will be observed that:

The initial touch of the first stroke was began in a comparatively lower place (A, B); the initial touch of the second stroke having started from the left side, a figure line" was drawn (C, D). How was then the brush handled in drawing the vertical line of the second stroke? When the question is studied by the help of the magnified phetographs, it will be found that the line at the start inclines leftward (D, E), next rightward (E, F) and finally left ard again (F, G).

The two hardwritings agre of a piece in all those respects.

(6) All the / of the ideographs A, A and A in Exhibit 278 appear to have been written first by directin the end of the brush to the upper left hand, next by increasing its pressure downward to the right so as to make a line (vide A,B), and then by moving the brush in the direction of the lower left hand with its pressure gradually diminished (vide Figure 11).

The mode of writing having the propensity pointed out above is often seen in writing with brush. In so far as the hand-writing under review is concerned, however, the degree of flexion

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is very sharp, and after drawing a line it is then brushed up

(A, B, C).

The) of the ideographs 25 and 1 in Exhibit 282 vero written quite in the same way, and I perceived that there are intercommunity and commetion between the two Exhibits.

(7) Then the left-hand radical 4 of the ideograph 43 in Exhibit 278 is studied in compar son with the 3 of the ideograph 45 in Exhibit 282 (vide Figure 12), it will be noticed that:

The initial touch of the first stroke descends vertically (A, B), and then the brush proceeds dornward to the left, amking a curve (A, B, C); next the line drawn to the upper hand tends to bend downward (C,D); the line then drawn downward to the left tends to bend rightward (D, E); the line drawn again to the upper right hand (E, F) is comparatively short; the next line (F, H) comes down from the upper part; and the finishing stroke is brushed up rightward with the pressure of the brush increased (G, H).

- A.. these features are common to the tro handwritings.
- (3) If the j only of the ideograph it in Exhibit 278 is compared with the j of the ideograph it in Exhibit 282 (vide Figure 12), it may be observed that:

The finishing touch of the second stroke, which was begun with an increase in the pressure of the brush proceeded rather upward with the reduced pressure (A); the joining line was made by commanding the brush in such a way as facircle were to be drawn downward (A, B).

The whole appearance of the third stroke together with all the points already mentioned, is identical in the two documents.

(9) If the __ of the ideograph k in Exhibit 278 is examined in comparison with the __ of the ideograph k in Exhibit 282 (vide Figure 14), 't will be seen that:

Def. Doc. # 400 The initial touch of the first stroke is slender and makes a curve with the gradually increased pressure of the brush (A, B, C); after pressure of the brush was increased at the finishing touch of the first stroke, the pressure was relieved before its junction with the second stroke was formed, as if a circle were to be drawn downward (C, D). In those respects the one Exhibit bears great resemblance to the other, (10) The poculicar style of the writer revealed in the initial touch of a short vertical line in Exhibit 278 is pointed out (vide Figure 15). The initial touch has a special featurek namely, it is thin, goes from the right to the lower left hand, is pointed and flows to the right side (A, B, C). This special feature of his in a vertical line can be seen in the ideographs | | | | | in Exhibit 278; the same particular style can be found in the vertical lines of the ideographs E, and in Exhibit 282. the vertical lines of the ideographs in Exhibit 282. and (11) If the No of the ideographs 原, 意 and 愈 in Exhibit 278 is compared with the no of the ideograph on in Exhibit 2828 (vide Figure 16), it will be noticed that: The initial touch of the first stroke is thin in the upper part (A); after increased the pressure of the brush, the junction is drawn toward the second stroke, and the shape of the initial touch of the second stroke is characteristic (C); the dot of the fourth stroke is drawn horizontally (G). The above features are identical in the two documents. (12) If the of the ideographs and in Exhibit 278 is compared with the of the ideographs 7 and in Exhibit 282 (vide Figure 17), it may be observed that: The initial touch is directed rather up and on coming to its change of direction, the shoulder, so to speak, it lowered and the brush takes its course somewhat left ard (B, C); the line then tends to turn right ard (C, D), - 14 -

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and next to flow toward the left hand (D, E).

The two documents are similar in these points.

(13) Then the ideograph [] in Exhibit 278 is examined in comparison with the characters [] and [] in Exhibit 282 (videof that:

The initial touch of the first screke, running down slightly to the left, turns to the lover right hand (A, B); then
changing its coarse a little the brush preceded to the lover
left hand (B, C).

In these respects the Exhibits are the very same.

(14) When the A of the ideograph 34 in Exhibit 278 is compared with the corresponding part of the ideograph 4 in Exhibit 282 (vide Figure 19), it will be seen that:

After the finishing touch of the first stroke of the part

the brush starts uppard to use right abdn with its pressure
relieved and comes up to the third stroke (C. D); then the
pressure is increased and the brush comes down to the lover
right aband (D, E); with the pressure of the brush again diminished, the stroke is rounded uppard (F).

Not only is the personality of the writer revealed in these points, but also the manner of the use of the brush appears entirely similar in the two documents.

Exhibit 285, it will be noticed firstly that the perpendicular line from the top to the bottom of has begun by a light touch which became heavier down and, bending a little to the right and then a little to the left, with a tendency to turn again to the right (vide Figure 26 (A)); secondly that the first stroke of was written from the upper left hand to the lower right hand, adding a little pressure in that direction, then decreasing the pressure, the brush was turned to the lower left hand to the direction of the secon' stroke (vide Figure 26(P) and thirdly that the percendicular

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line of that drawn at its end part with a pressure to the lower left hand and then brushed up to the upper left hand (vide Figure 26 (C). The left hand radical of the ideograph is

(vide Figure 26(B)), the perpendicular line in the ideograph. I (vide Figure 26 (A)), and the end part of of the ideograph; to (vide Figure 26 (C)), 11 in Tahibit 278, correspond exactly to those of the Signature in their characteristics.

The Signatures in Exhibit 283, 284 and 285 are obviously identical, all having been admitted by P'u-yi as his own hand-riting. Hence, the ideograph is hereby shown only from the Signature of Exhibit 285 and compared with the hand riting of Exhibit 278 which is in question.

(c) Examination of Unusual Style of Vriting of Ideographs

(1) In Exhibit 278, the last stroke of the ideographs and right, that is, the shape of the finishing touch of the long vertical line, which is brushed up, presents a peculiarity of great importance (vide Figure 20). On close inspection, it will be noticed that the vertical line extending long do nord inclines rather to the left at the finishing stroke (A); the extrematy of the finishing stroke forms an acute angle (B); and is brushed up a little toward the upper left hand (C).

All those make special features of this Exhibit.

In Exhibit 282 the ideograph fralso presents the same individualistic style as the foregoing (vide Figure 20)

The calligraphic hebits herein enumerated make a special feature which will not permit of imitation or emulation by other writers. The chirocraphic peculiarity here is that the last stroke of such ideographs as \$\frac{1}{2}\$, \$\frac{1}{2}\$ and is not ordinarily brushed up, and these characters with their finishing stroke brushed up are very rarely to be met with.

Def. Doc. # 400 Being interested in this point, I kept a record of my examinations of handwriting which illustrated this particular forture. My notes show that between February 1935 and April 1944, I discovered characters of this type in the handwriting specimens of 26, 112, persons, of which number only four, or about one in 6,500 brushed up the final stroke of such ideographs. (2) In Exhibit 278, the left hand redical of the ideograph 3h, is found in the shape of (vide Figure 24) .In Exhibit 282, the body of the ideograph 13, is found in the same shape of 2. In the utograph, of the ideographs and this is written with the same characteristic feature (vide Figure 24). This method of riting is soldom seen except in encient Chinese books such as ang Yi-chin's. Generally to do not trite in the shape of , but in the shape of (3) "n Erhibit 278, the body of the ideograph in assumes the form of #7, the vertical line of the second stroke which extends to the lover left hand piercing through the top of the first stroke (vide Figure 25). In Exhibit 282, the same ideograph is ritten in the same way. The formative peculiarity of this particular ideograph thus can be seen in both handwritings (vide Figure 25). Such a style of ponmonshin is not in vogue far and ide. It cannot easily be found even in ancient documents written by famous Chinese calligraphers of the various ages. Usually is written instead of to . Although we find to in opitanhs of the Tang Dynnsty and in the calligraphy of Ten Chengming, these are fundamentally different from the style mentioned above. I do not, of course, mean to say no other calligraphers have adopted this style, but only that very fer have done so. Surmary On reviewing all the results escertained by the examination outlined above, I am comported to the conclusion that all the documents under examination are permeated with the common individualistic proculiarities of the nonmanship of on author, and display no important points of difference whatsoever among - 17 -

themselves. The same latent force of the brush, which is proper to a particular writer, generally pervades all these specimens of handwriting. It is, therefore, my conclusion that the proof is absolute that the documents constituting Txhibits 278 and 282 and the Autograph were written by one and the same person.

Attention is called to the first that some may contend that such common features of permanship as I have mentioned above may sometimes be found by chance in the hands of two or more persons. Such negative contention is valid only where points of resemblance are few in number, or where one special feature of the many is observed independently of the others. But where there are present in common so many peculiarities in the specimens as in the present case, a neg tive contention of this sort will not hold good, for it is inconceivable that the hand-raiting of one person should coincid with that of another in embodying so many similar features.

Some may further argue that the coincidence of common features may be caused by the imitation of handwriting by a forger who has studied the handwriting of another person. It is true that among forgers are some who excel in the imitation of the penmanship of others. Resemblance, however, is revealed in the structural features such as distance between strokes, inclination or the length of strokes. The similarity in the appearance of form, however, is not accompanied by the sameness of forces. Moreover, it is impossible to imitate the delicage of 1 tent individuality of hendwriting in the imitate touch, the ending of a stroke and in the drawing of a line. A minute examination of such handwriting will be sure to discover unnatural points.

The penmuship of Exhibit 278 being extremely natural in the operation of the brush, it is clear that there is no forgery in it.

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In view of the accumulation of decisively neculiar features of penmanship common to all documents under examination, s above pointed out, and the constituous absence of any important differences, an fully convinced of all the documents under examination being written by one and the same person.

Tokyo,

· inne dationmer.

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Translation Certificate

I, Toshio Okamoto of the Defense, hereby certify
that the attached translation of Toshio Okamoto,

Berrister-at-Law of England & Japan, is, to the best of my knowledge
and belief, a cor ect translation and is as near as possible to
the meaning of the original document.

/s/ T. Okamoto

Tokyo, Japan

Date March 1st. 1947.

EX. 2 7-8

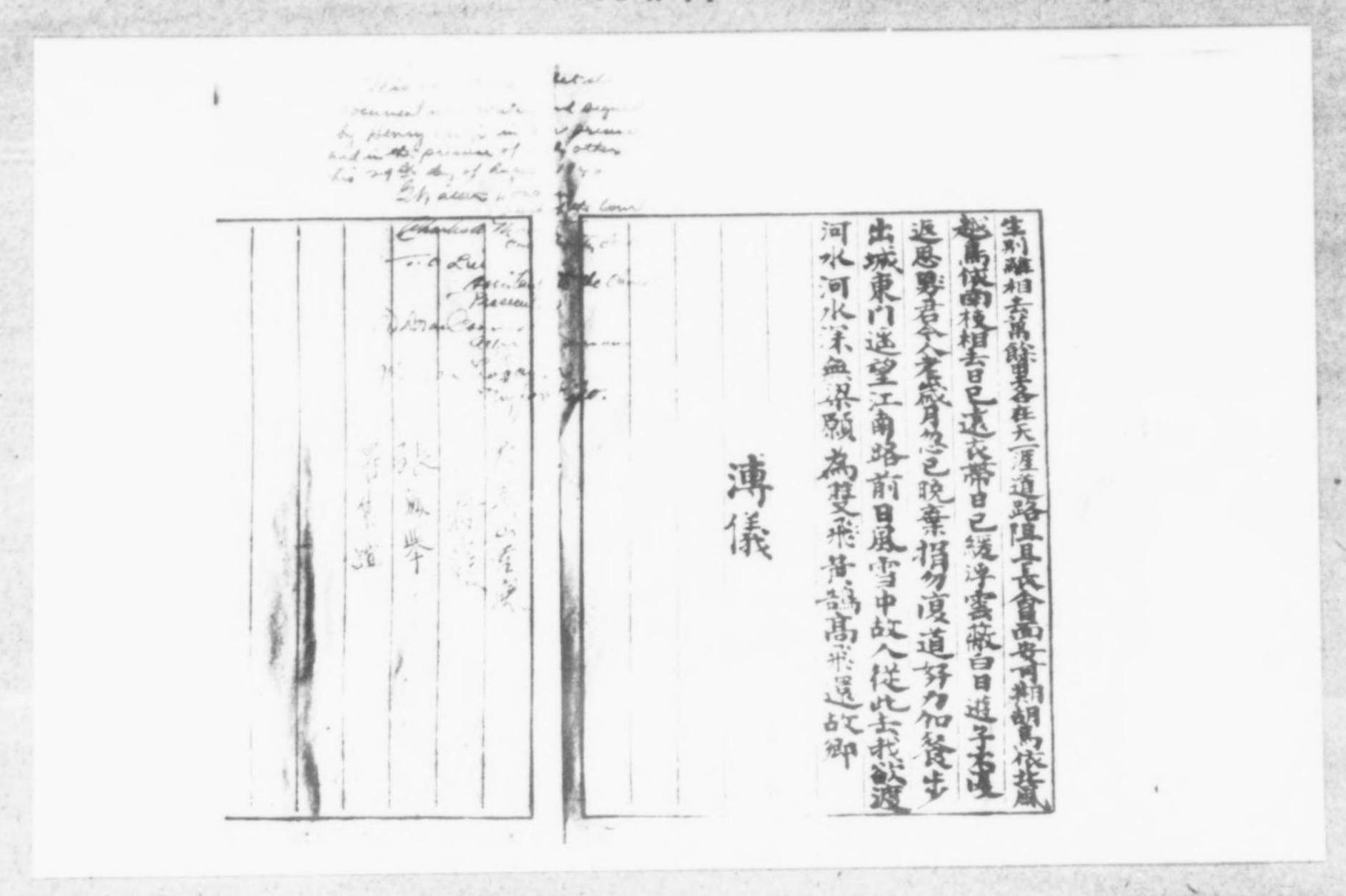


EX. 282



FAN PRESENTED TO THE ACTION BY THE EMPEROR WITH ACTOGRAPH COPY OF A CHINESE POEM OF LARDWELL

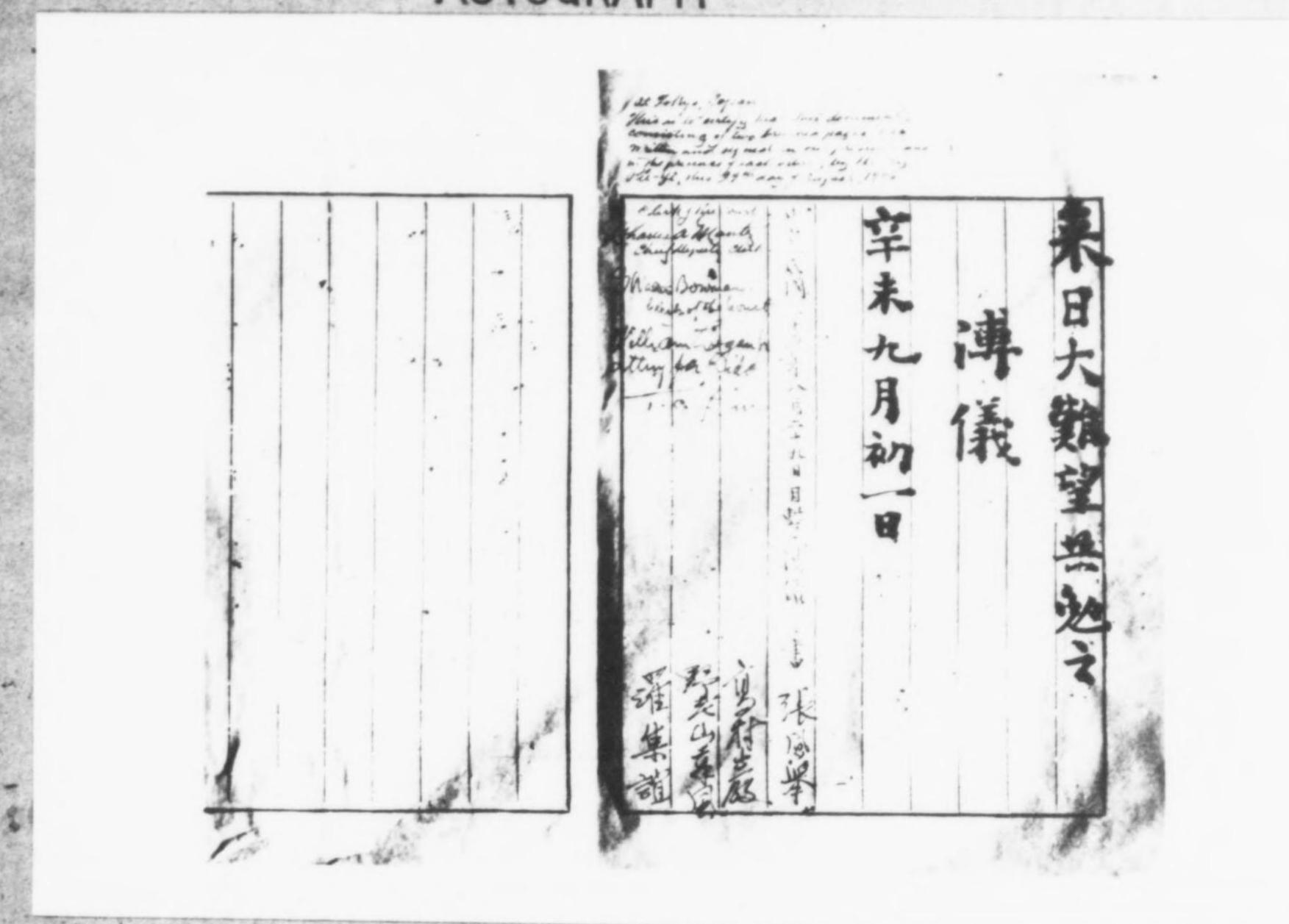
AUTOGRAPH



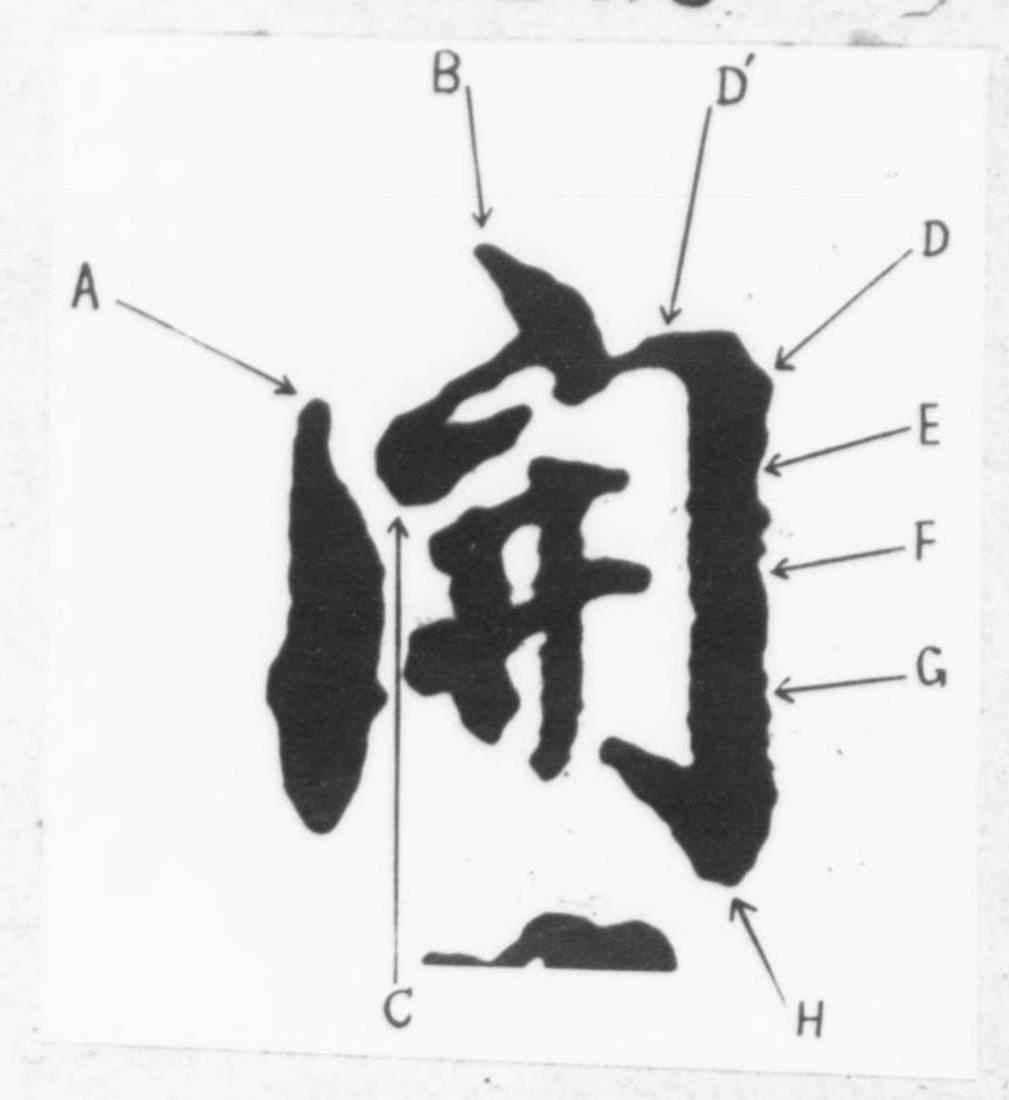
AUTOGRAPH

洪水 前途之章殿要以外方海口必以水 所 在 所 在 是 是 因 势中面 以 我 那 将 好 数 久 愈 越 愈 京 小

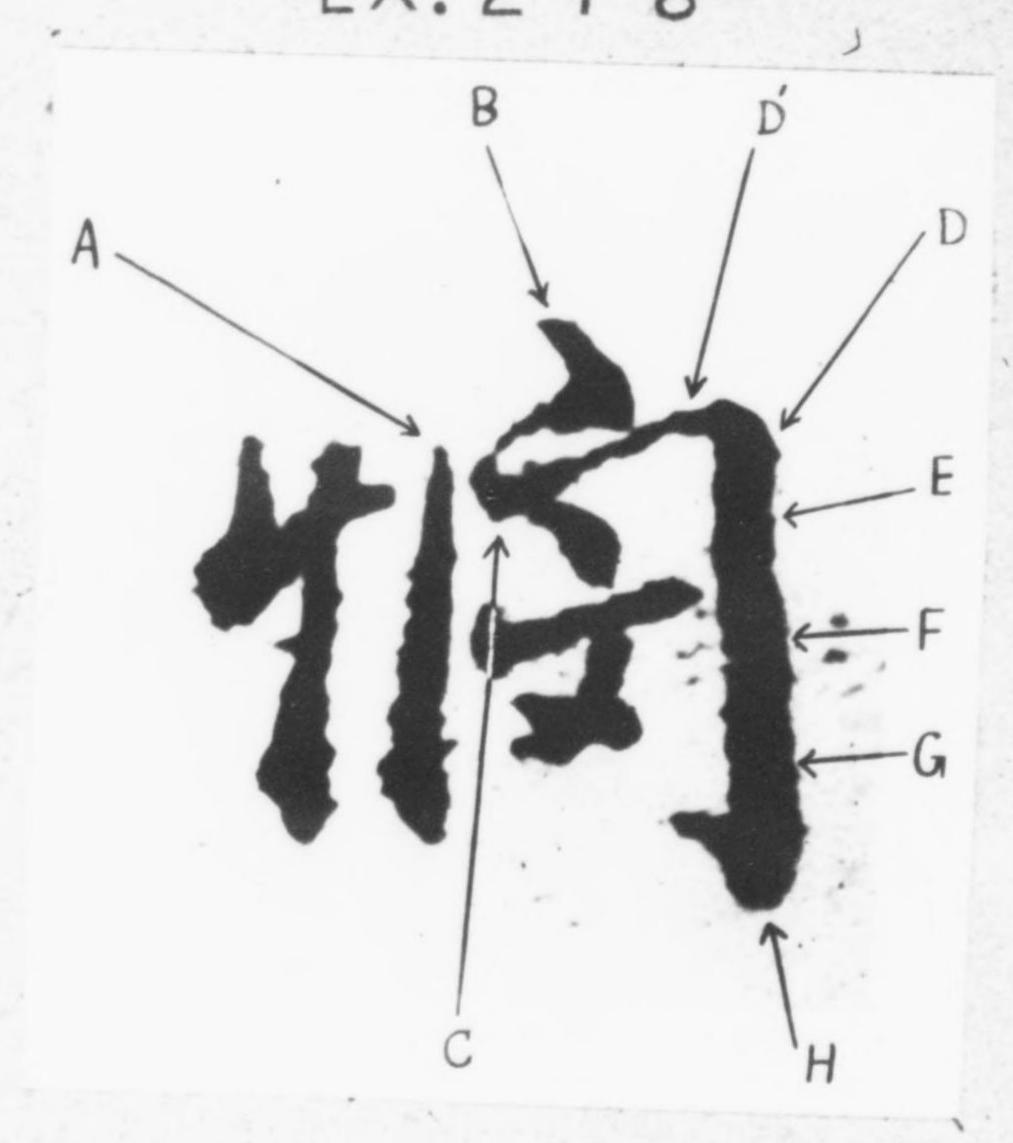
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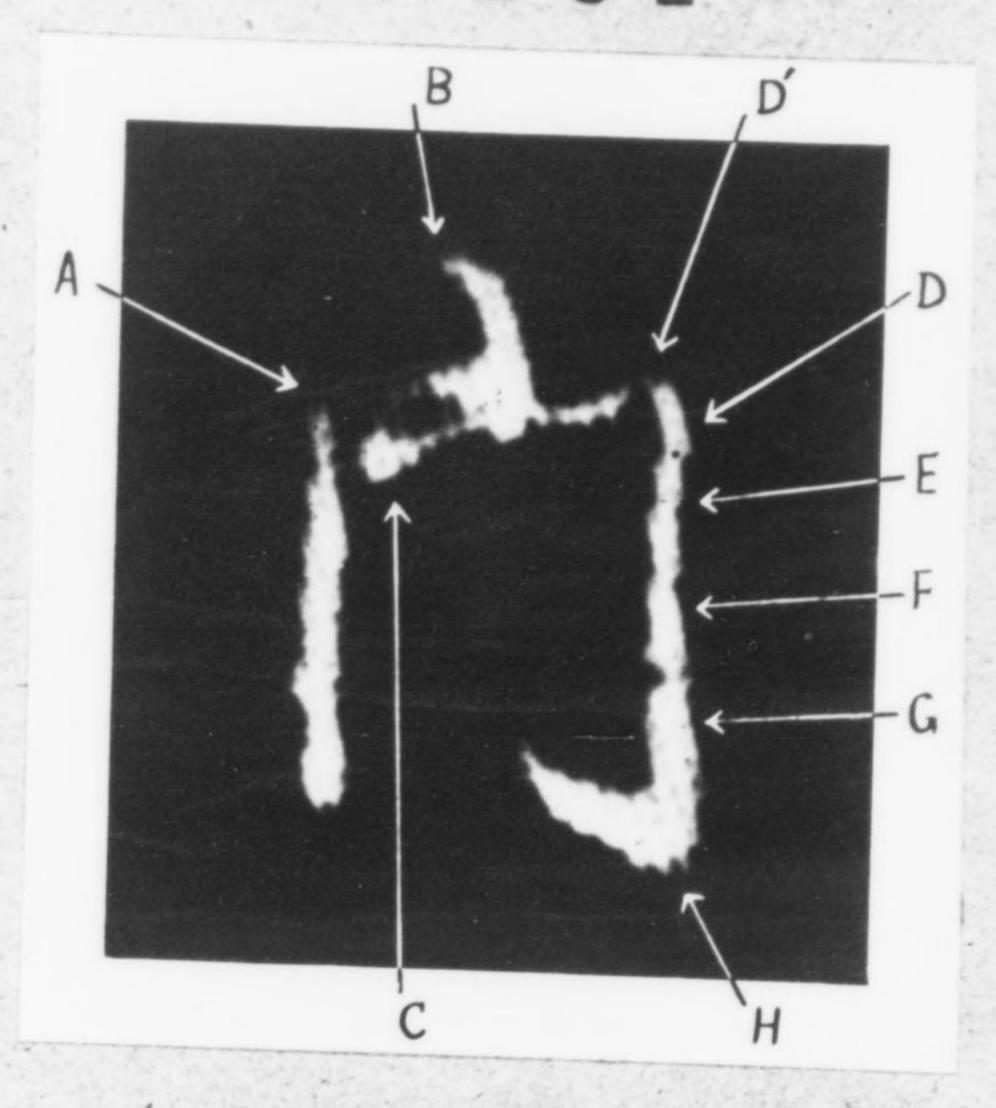
EX. 2 7 8



EX. 278

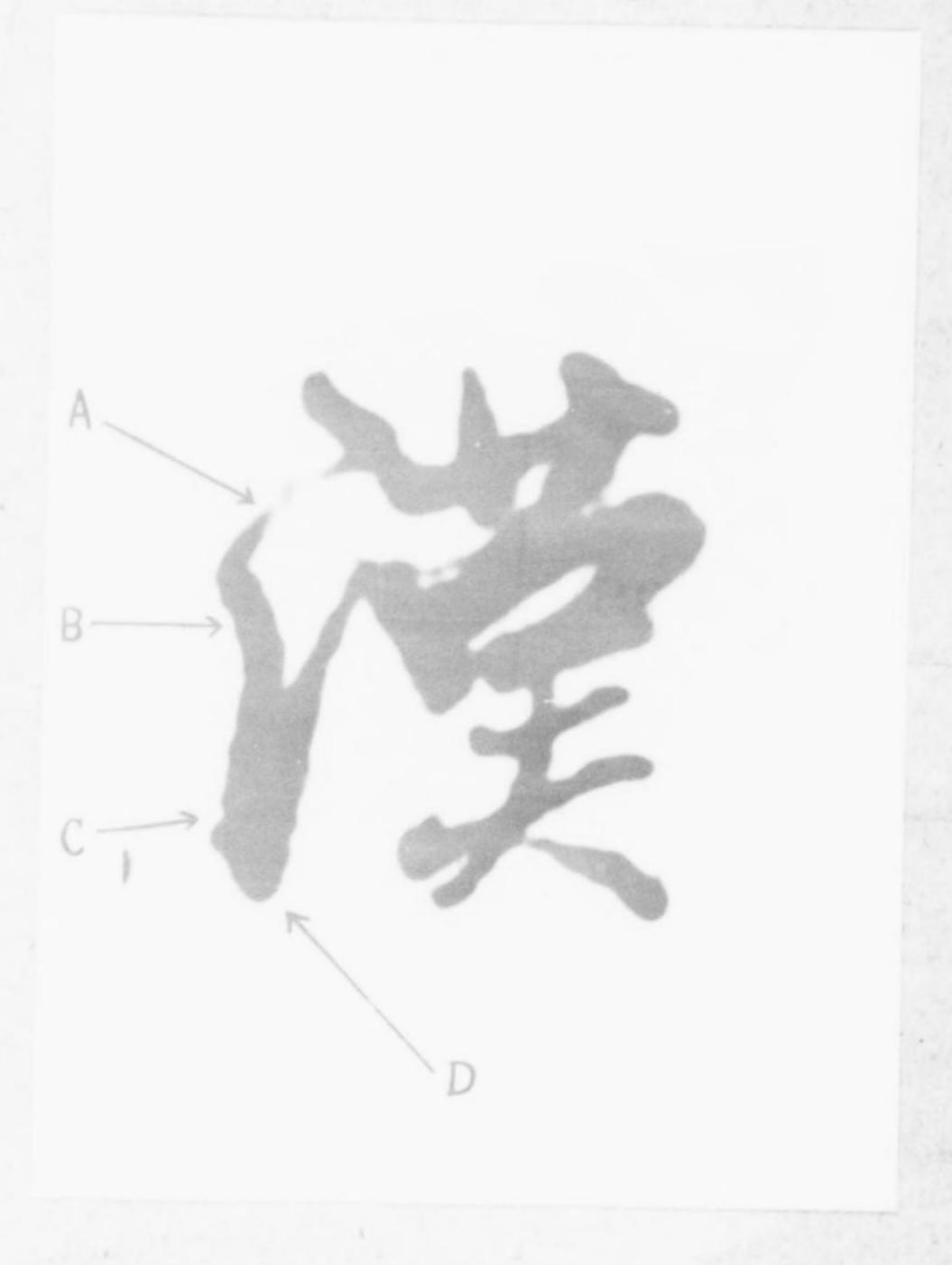


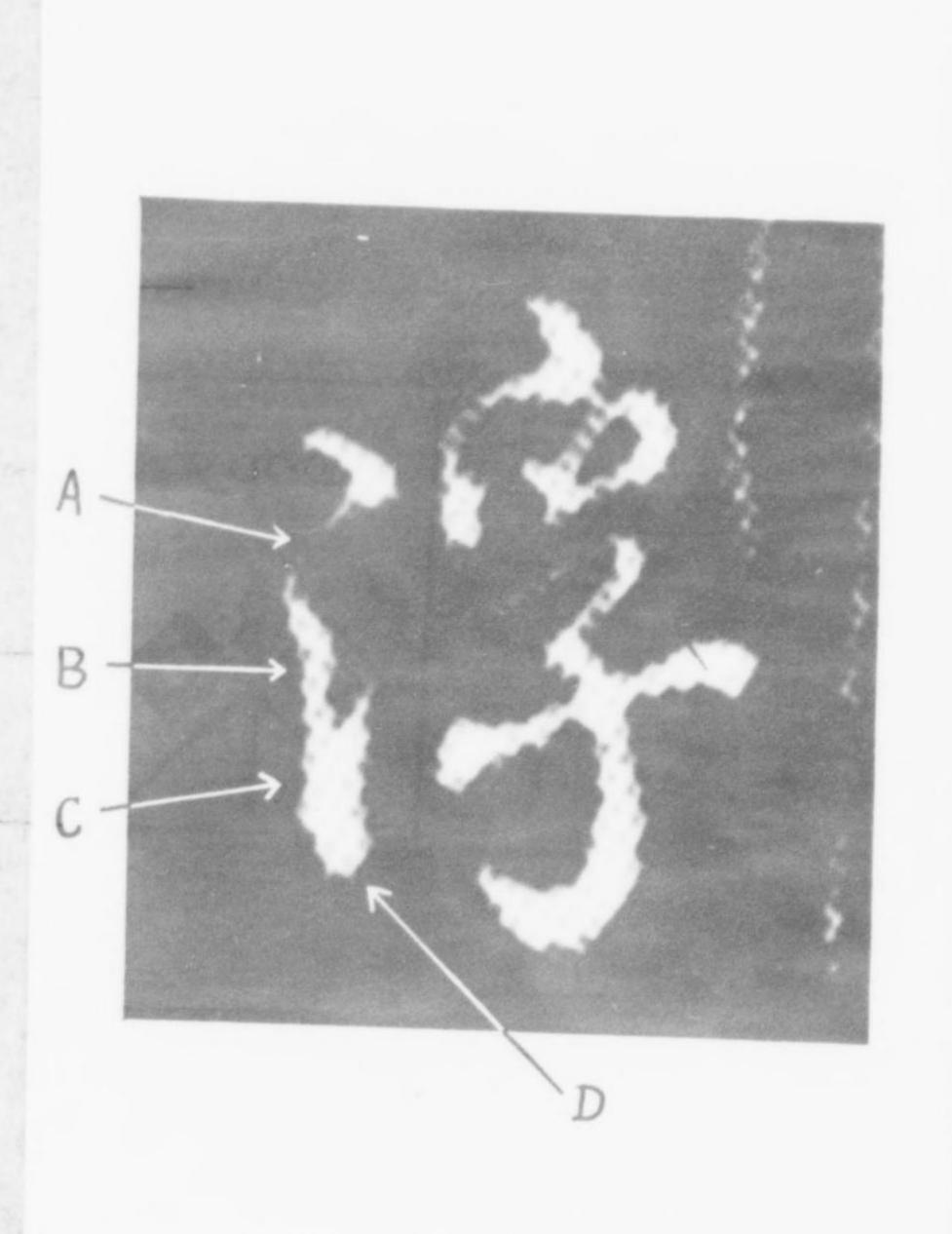
EX. 282



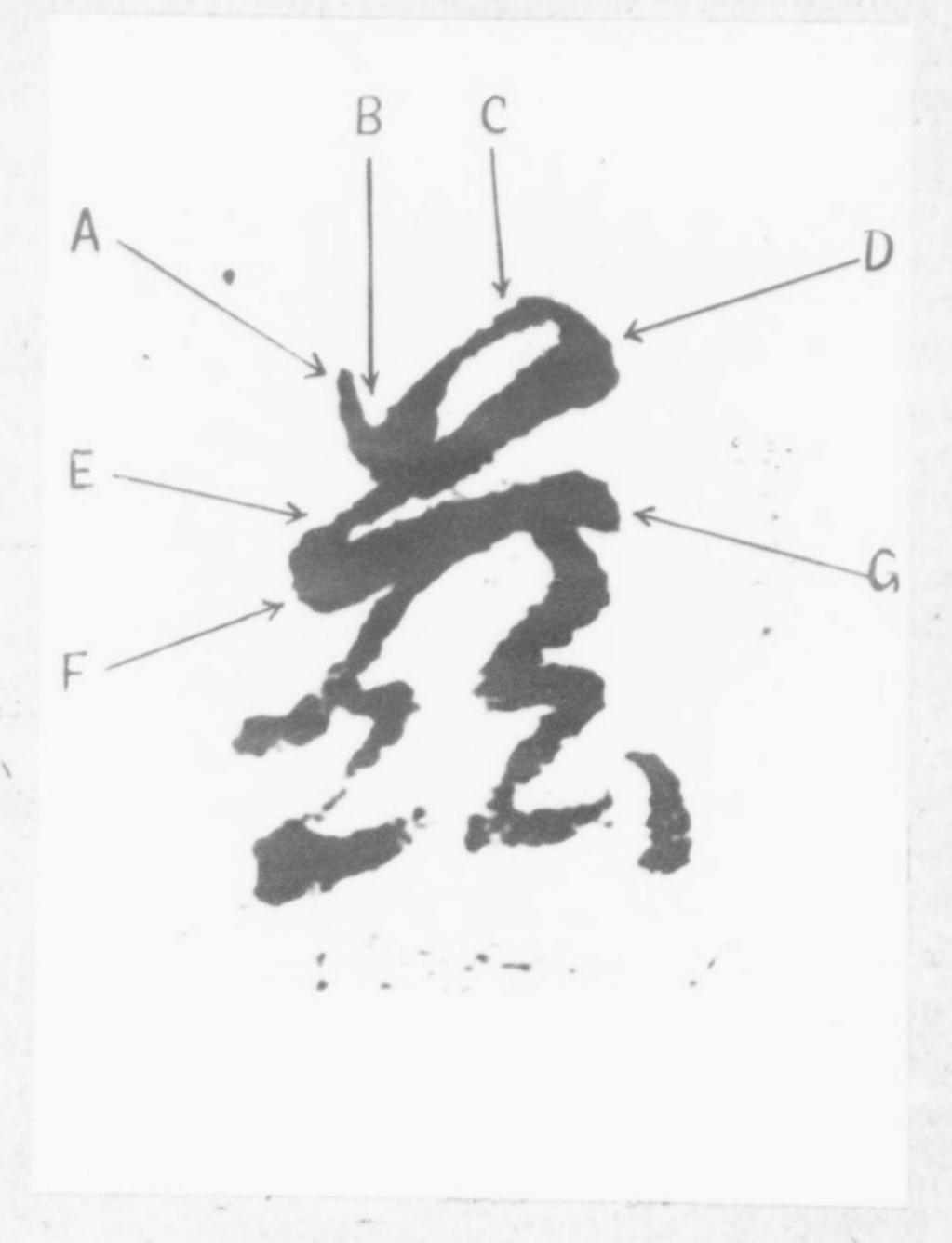
EX. 278

EX. 282

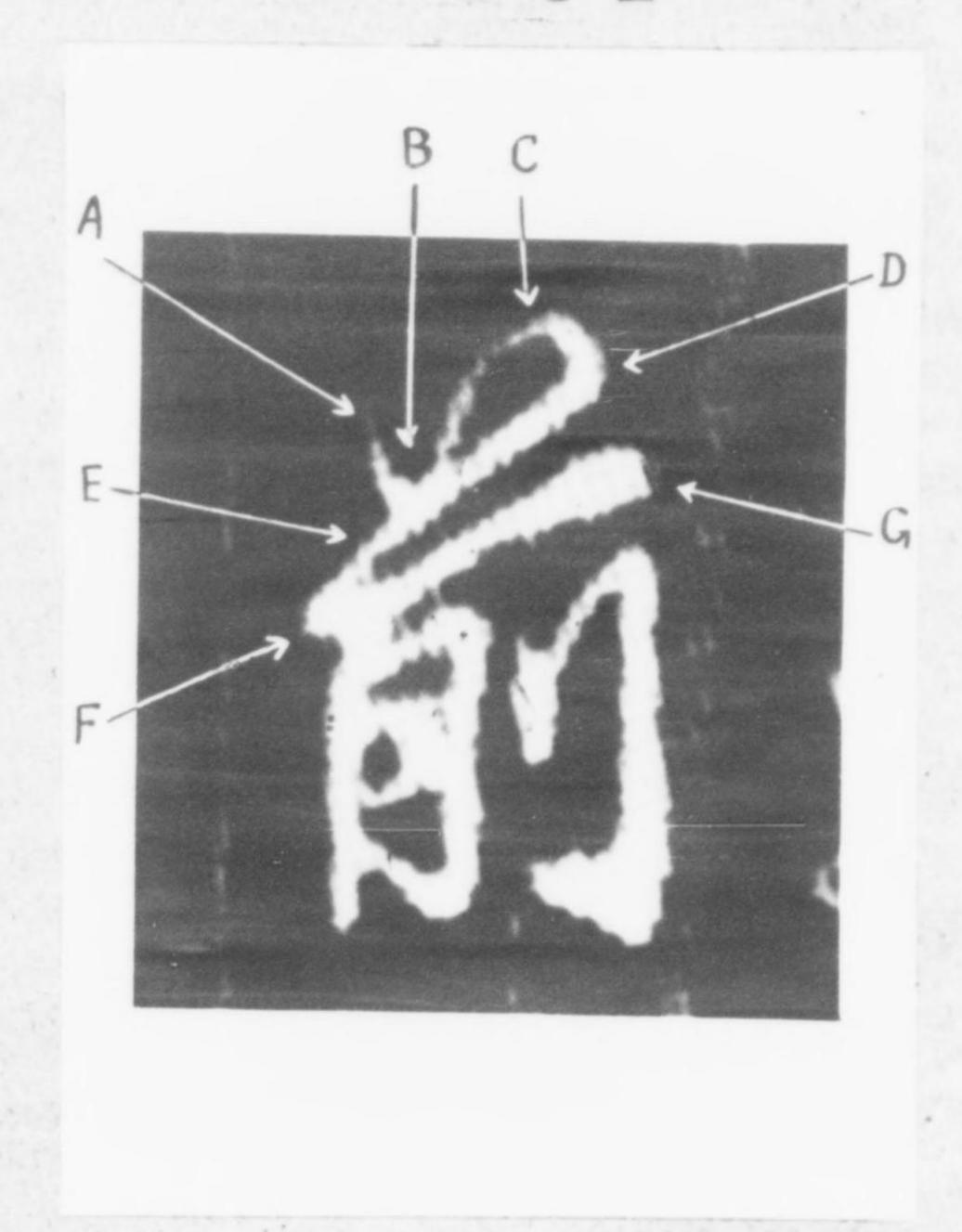




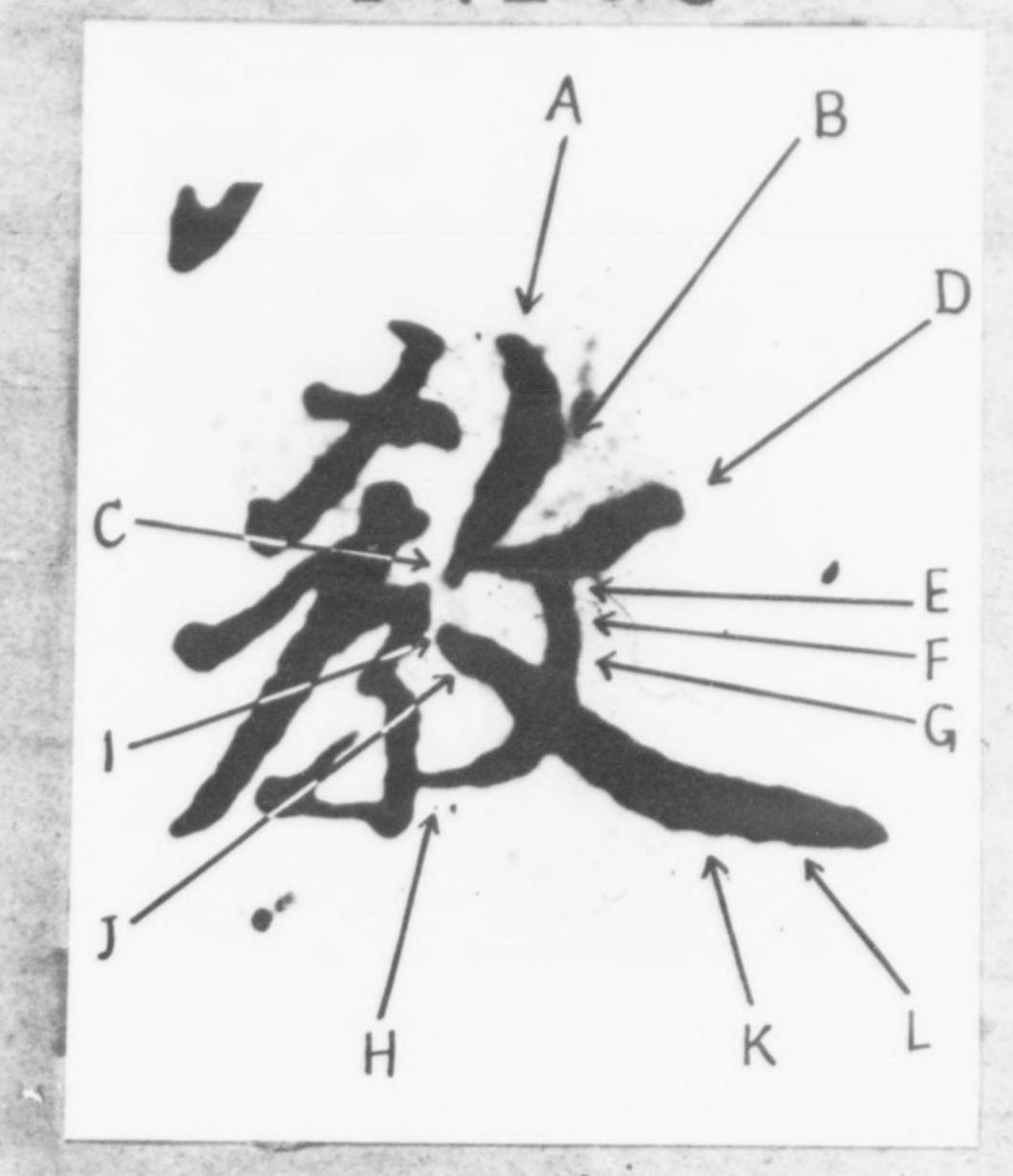
EX. 278



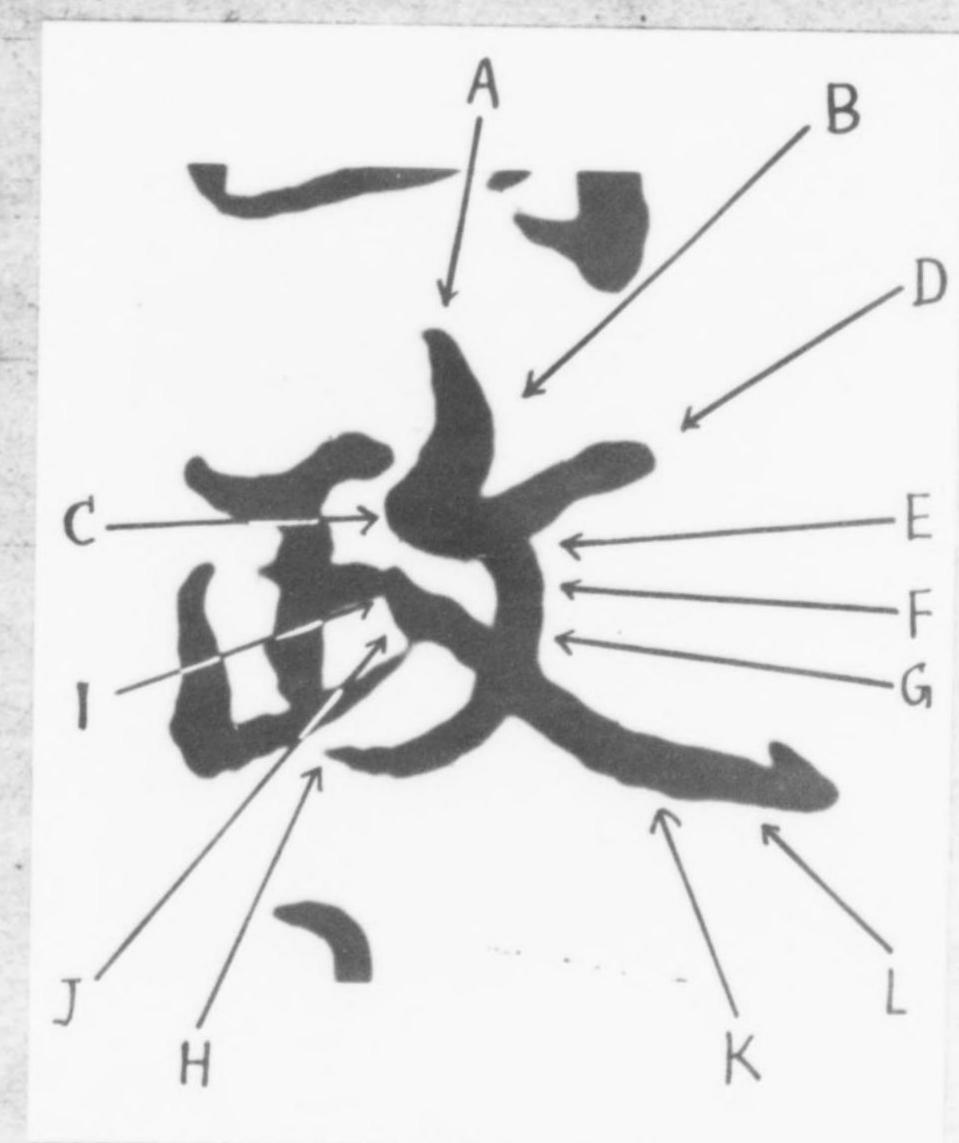
EX. 282



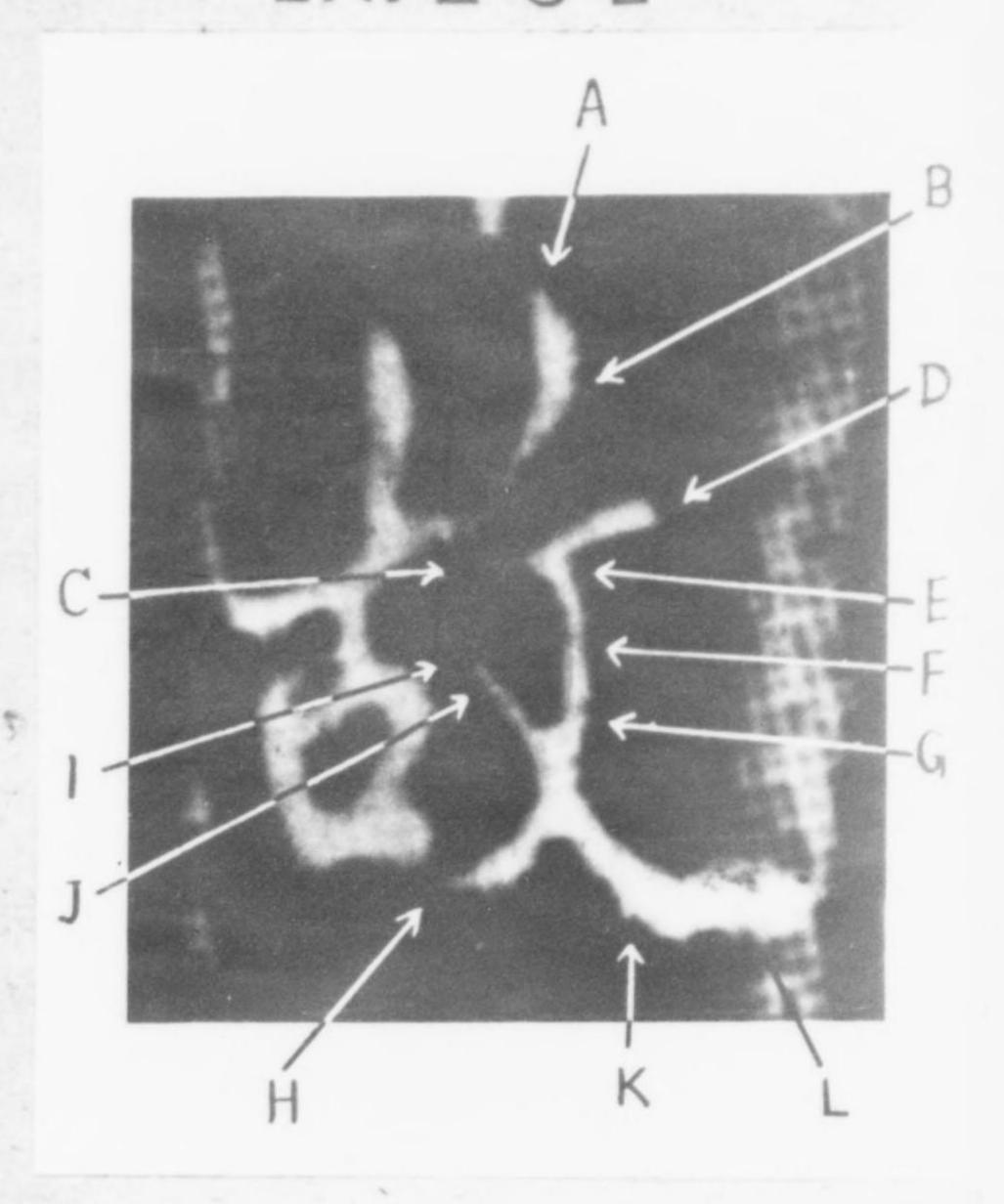
EX. 278



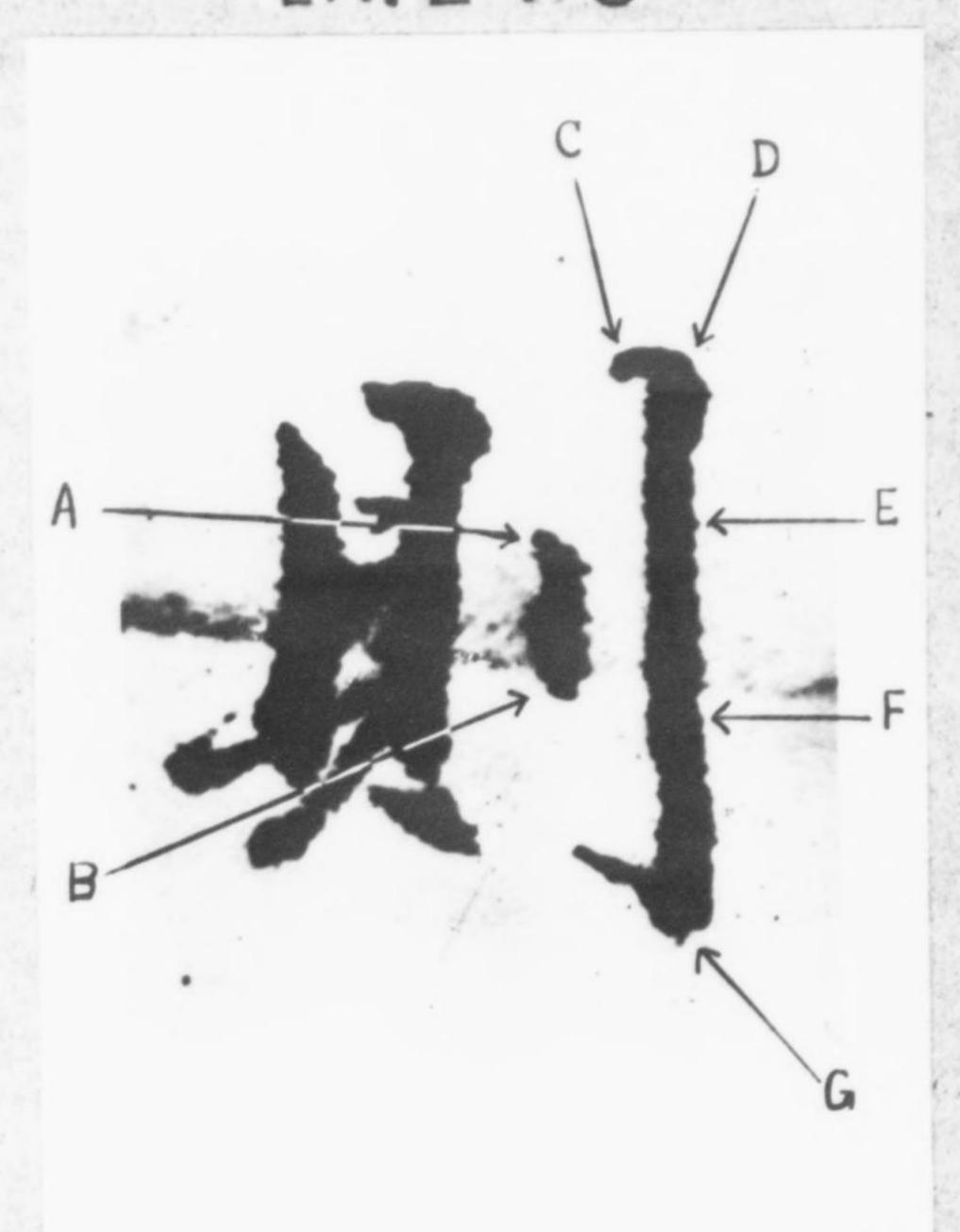
EX. 278



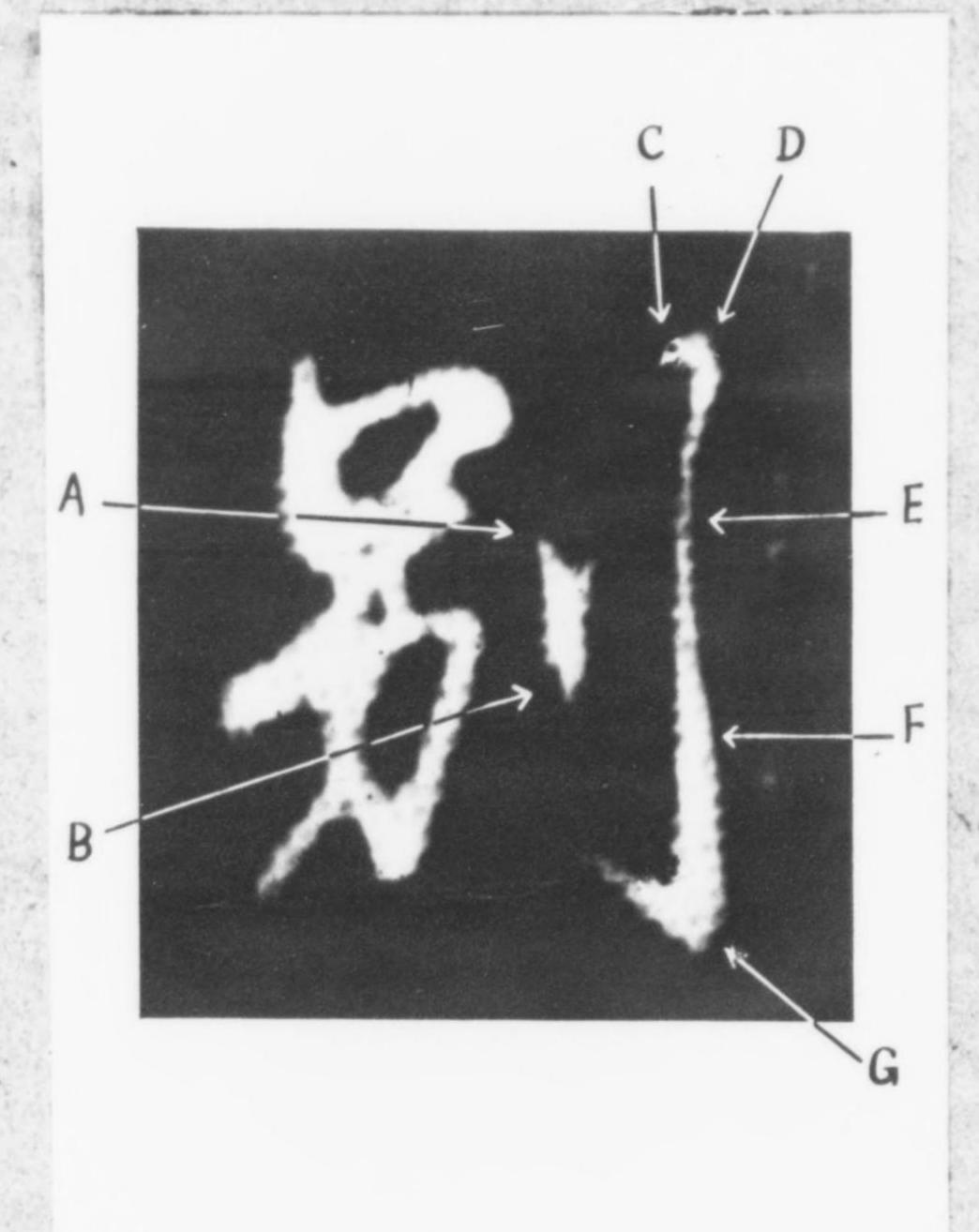
EX. 282



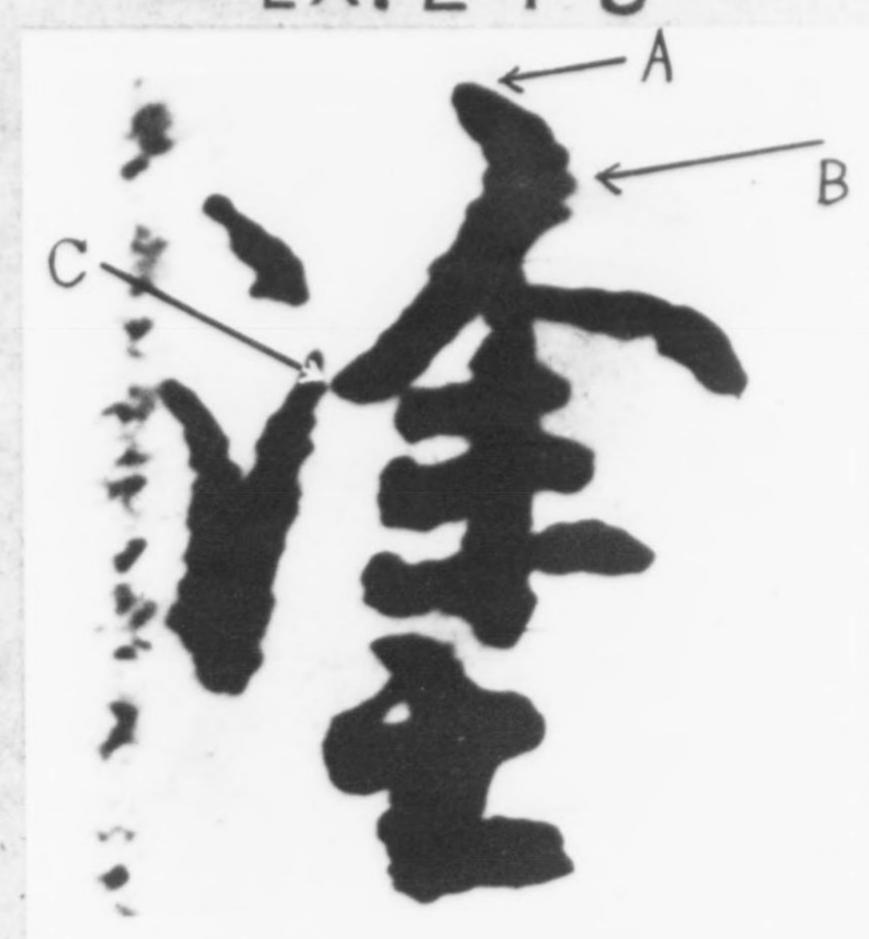
EX. 278



EX. 282



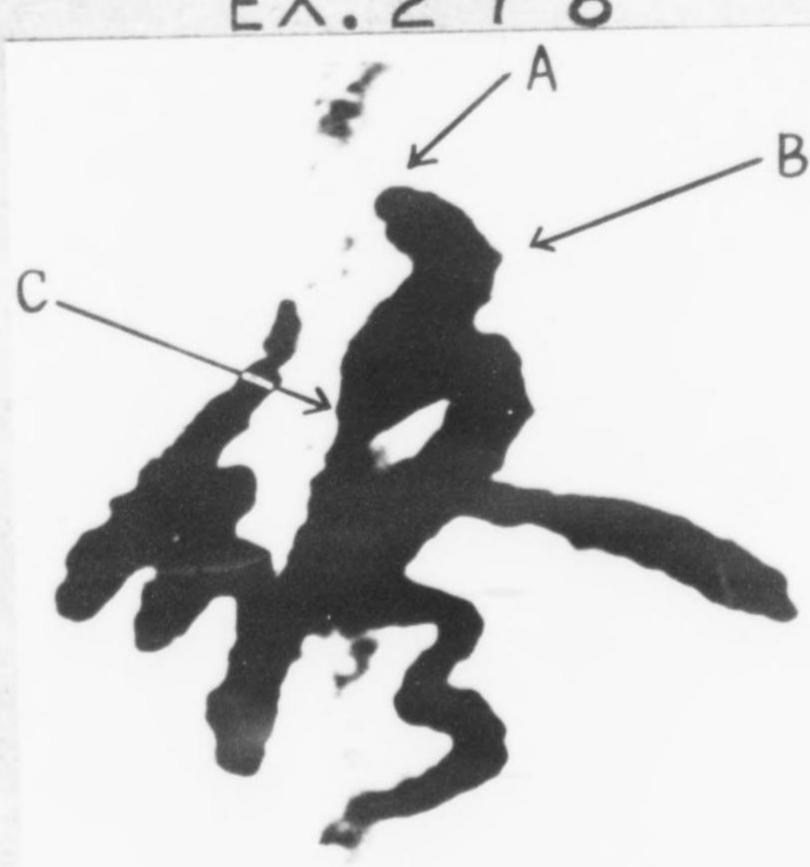
EX. 278



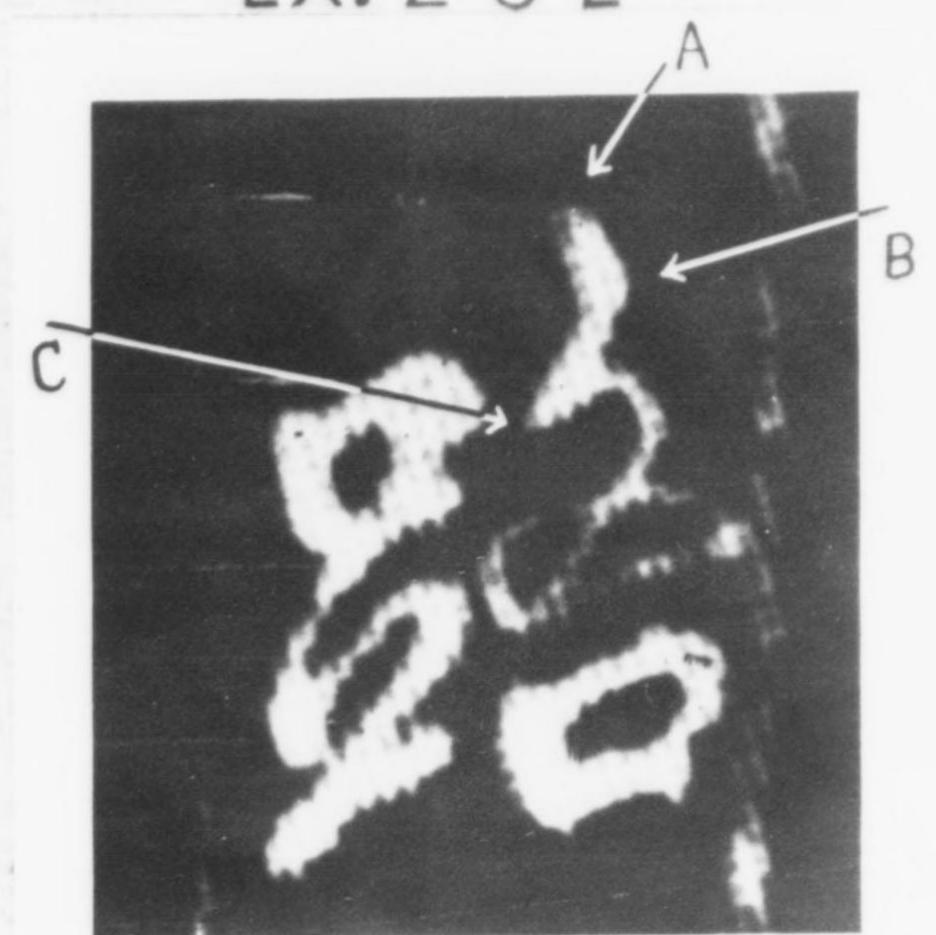
EX. 278



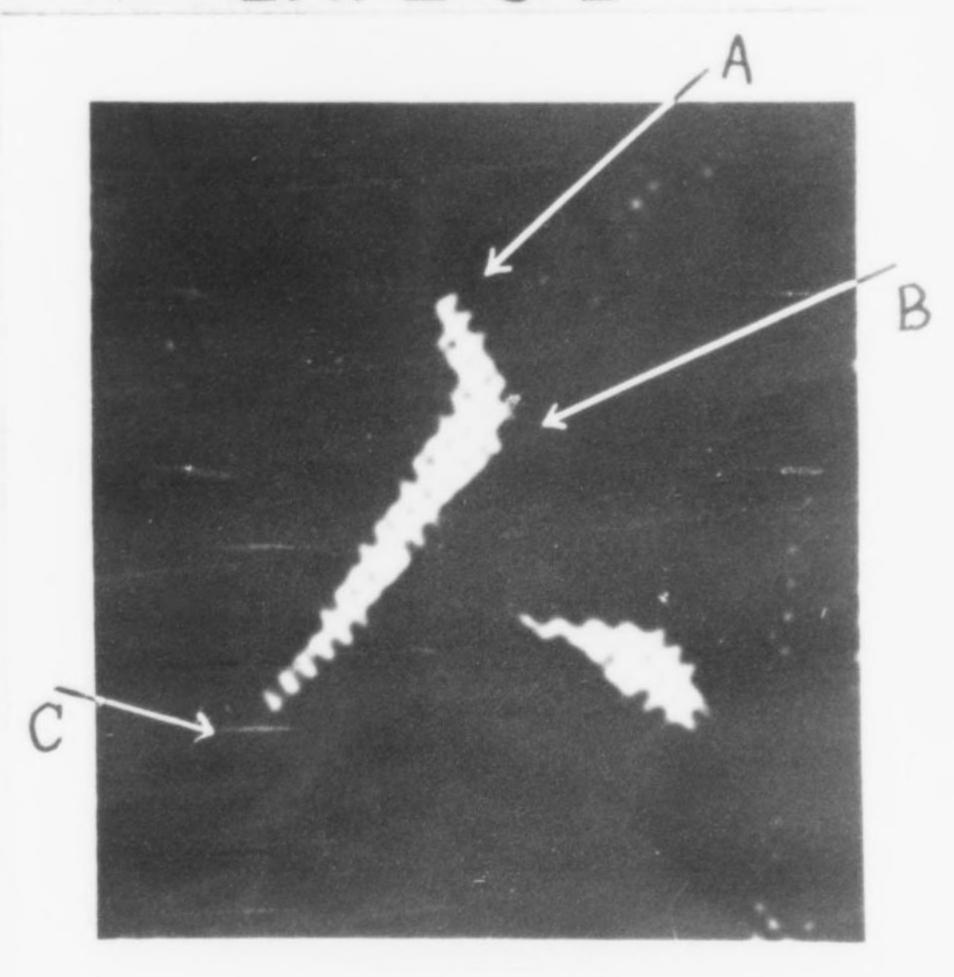
EX. 278



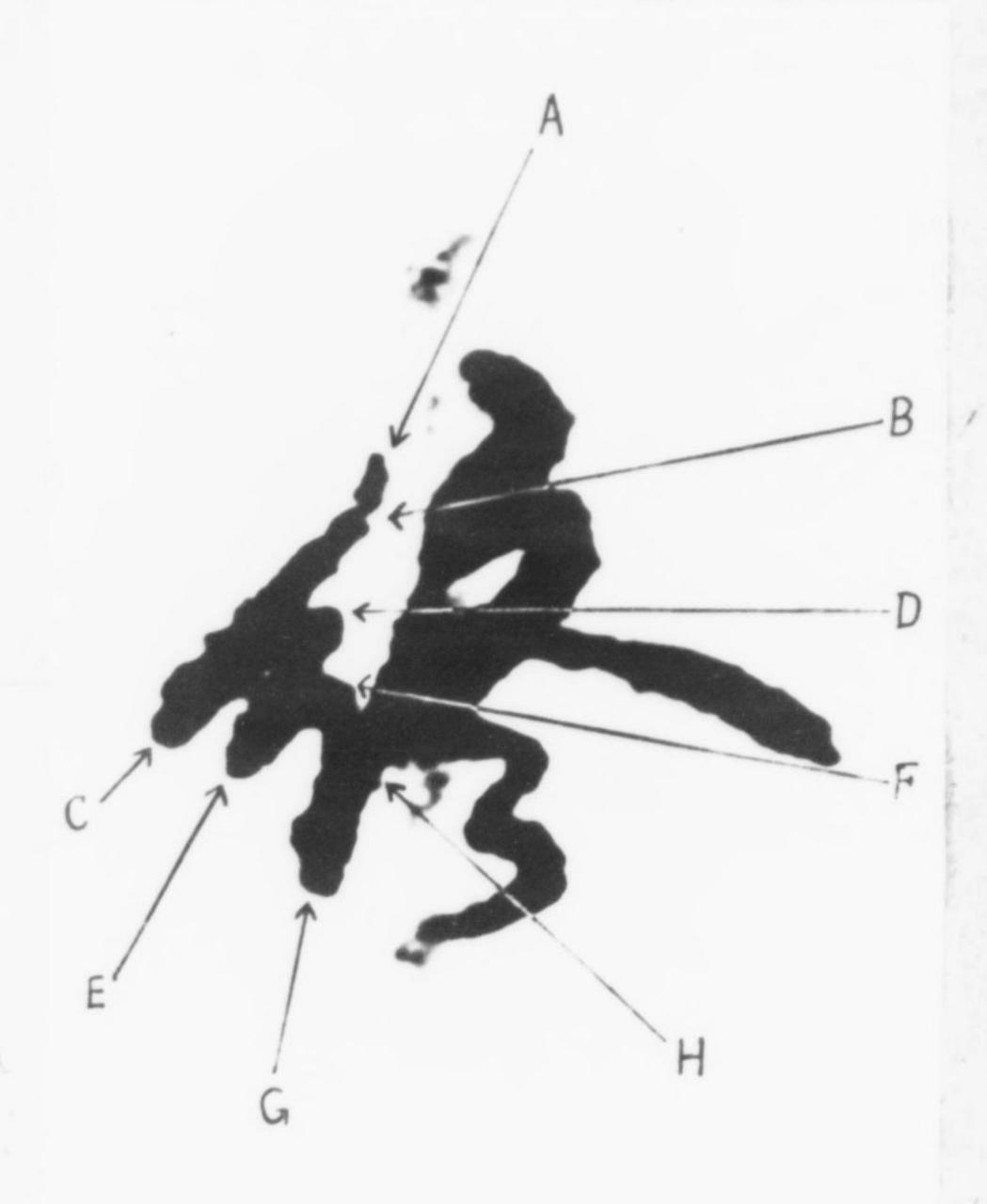
EX. 282



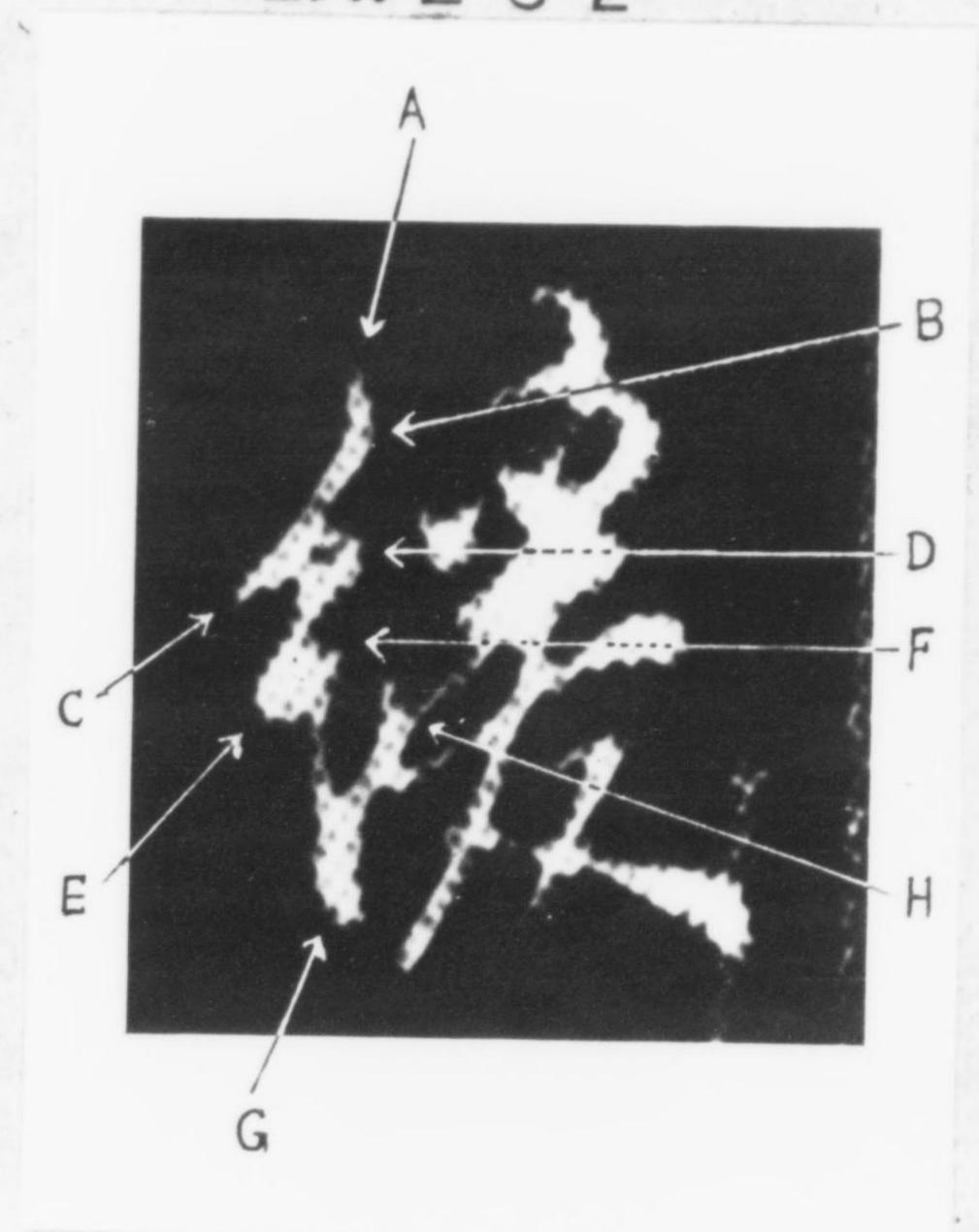
EX. 282



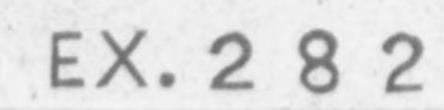
EX. 278

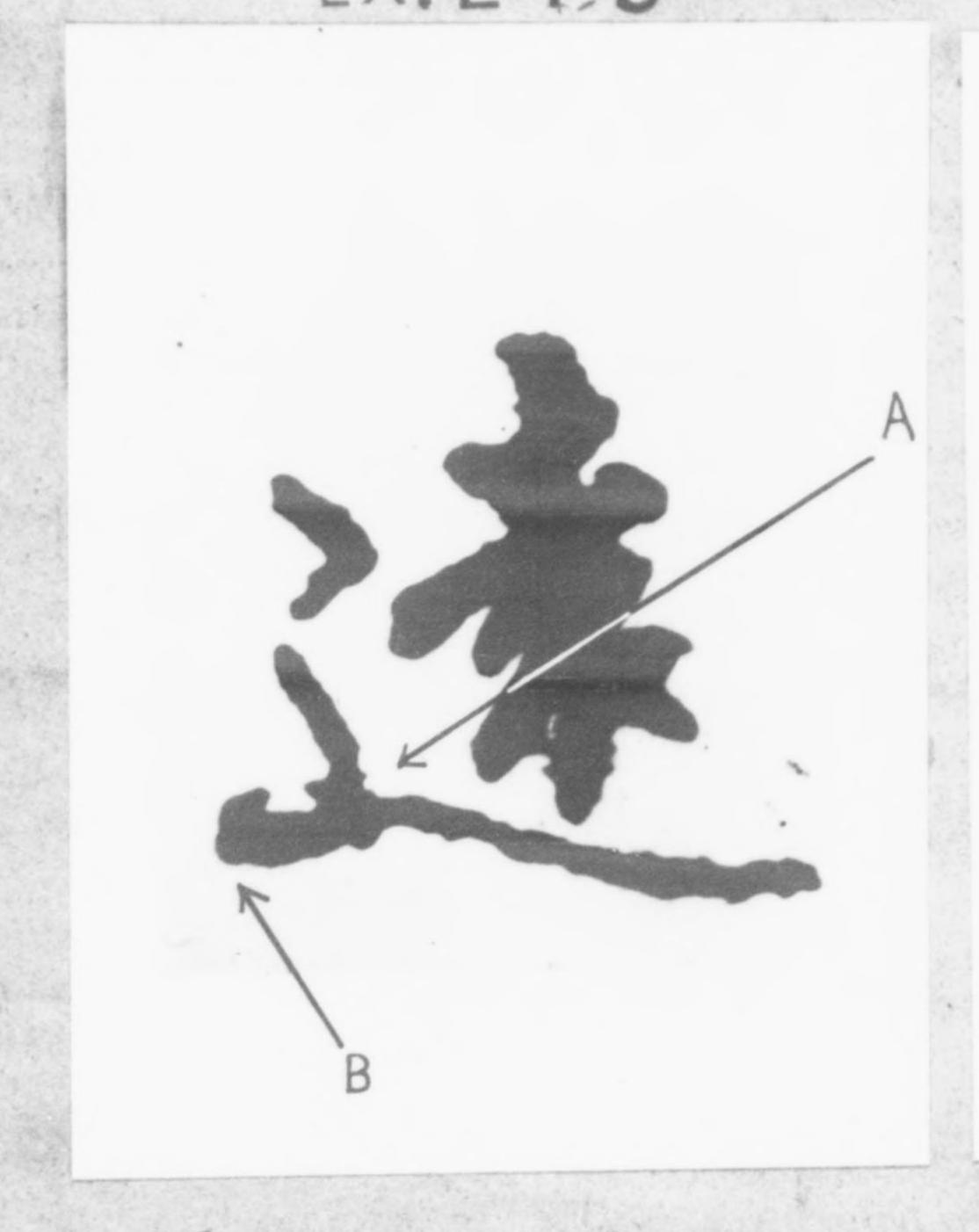


EX. 282



EX. 27.8





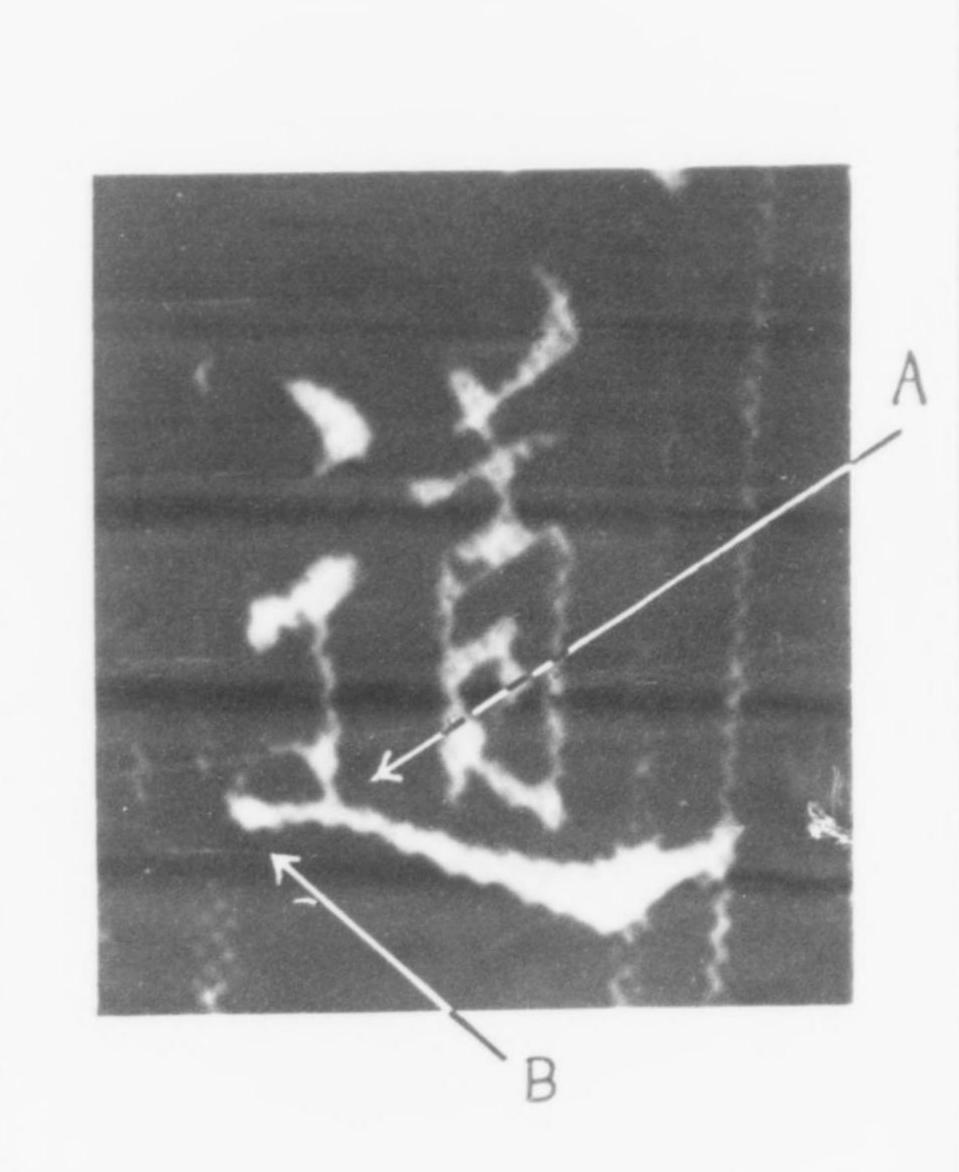
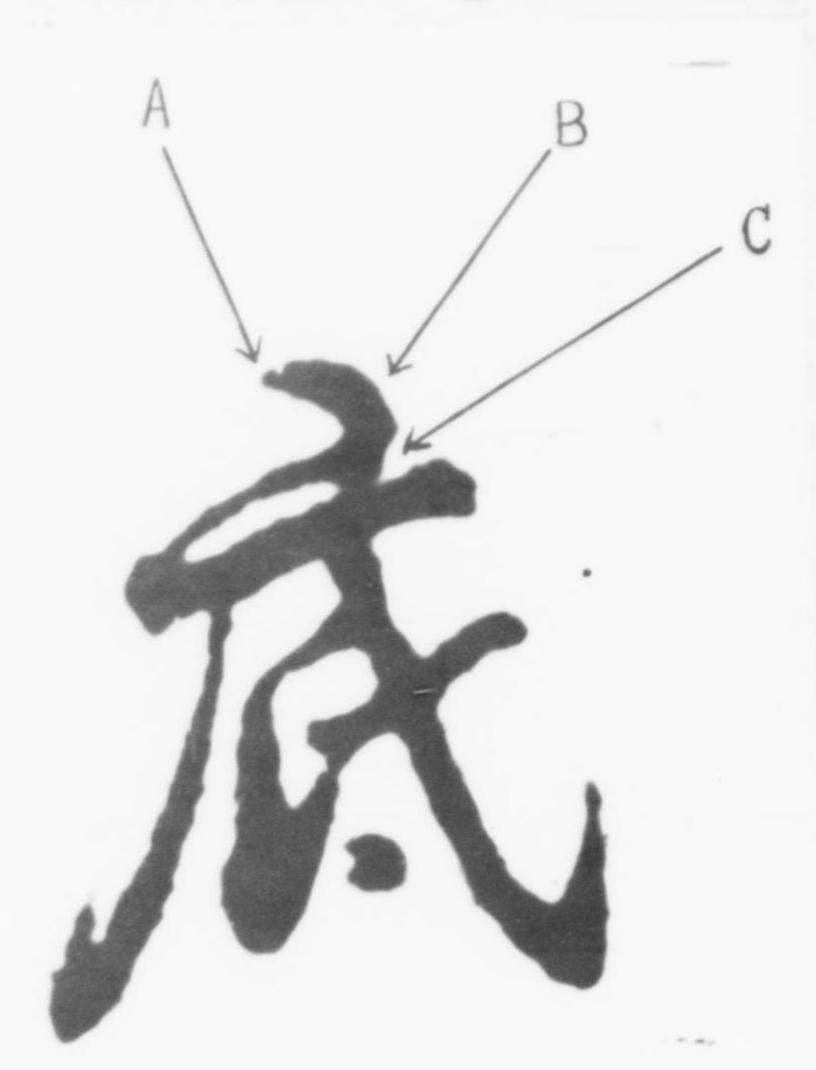
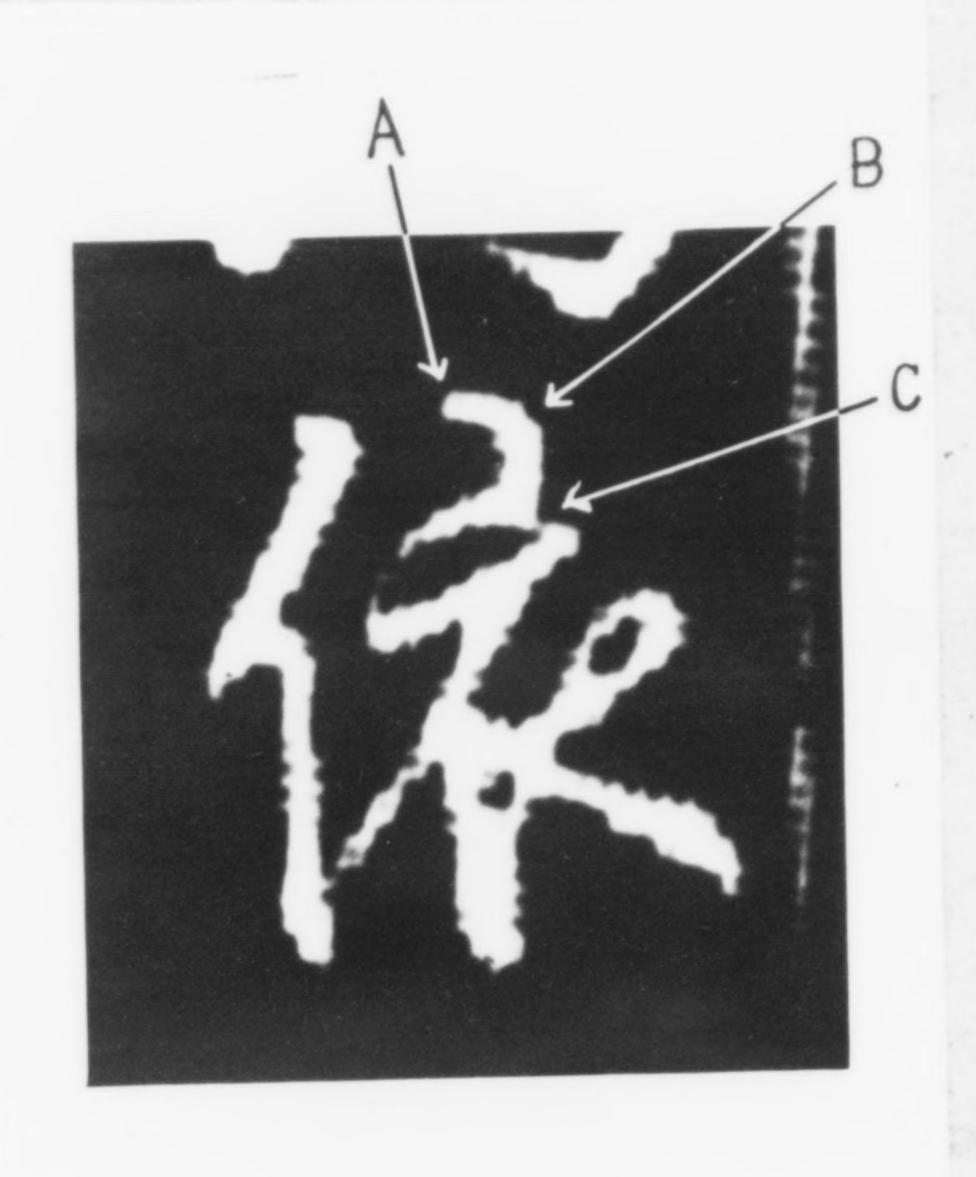


FIGURE NO. 14.

EX. 278



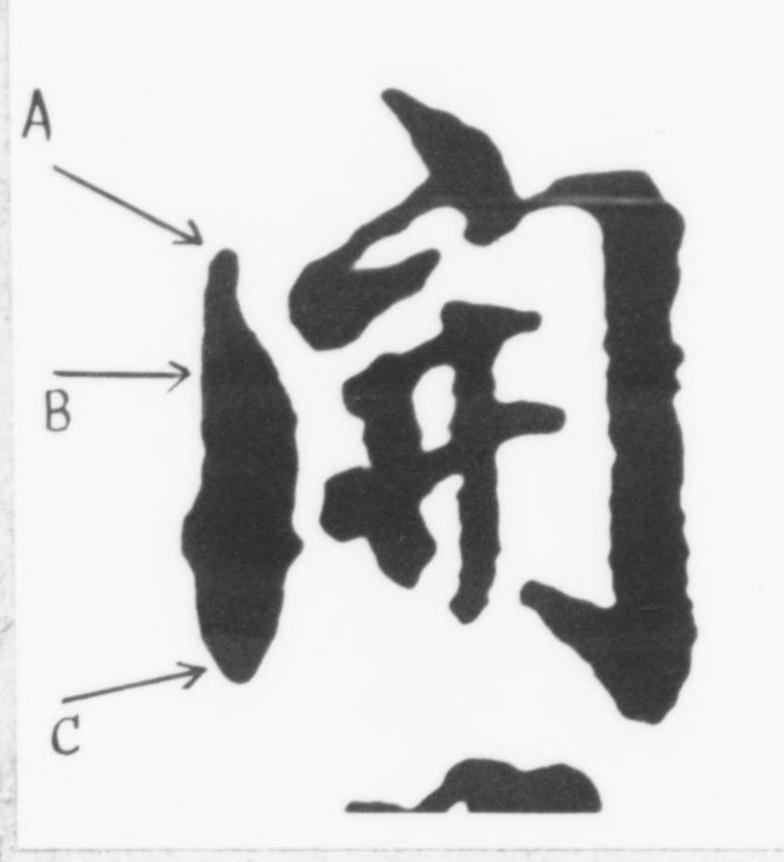
EX. 282



EX. 278



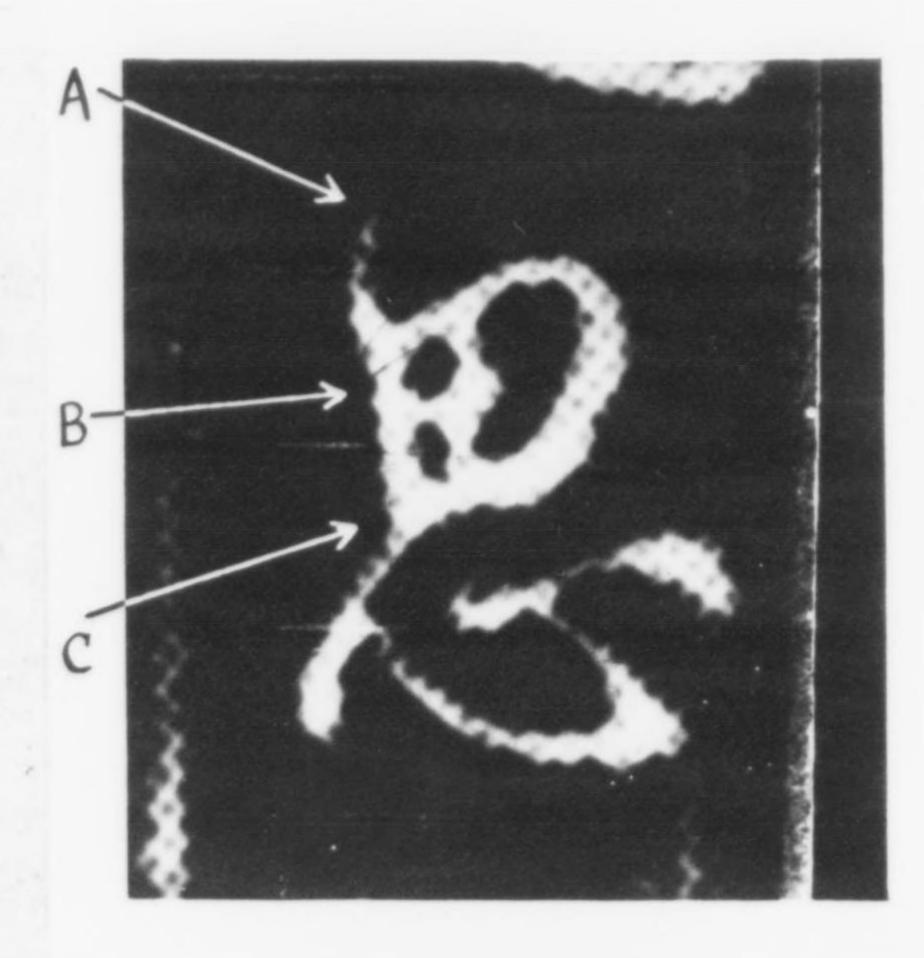
EX. 278



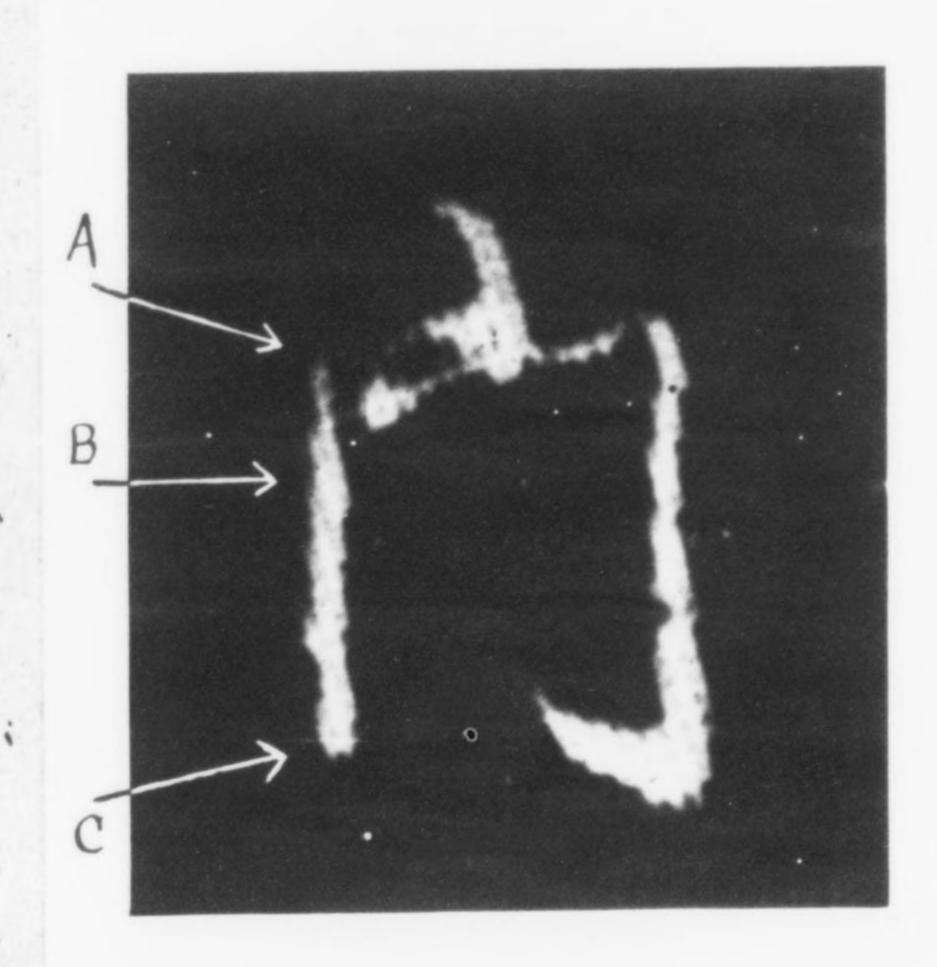
EX. 278



EX. 282



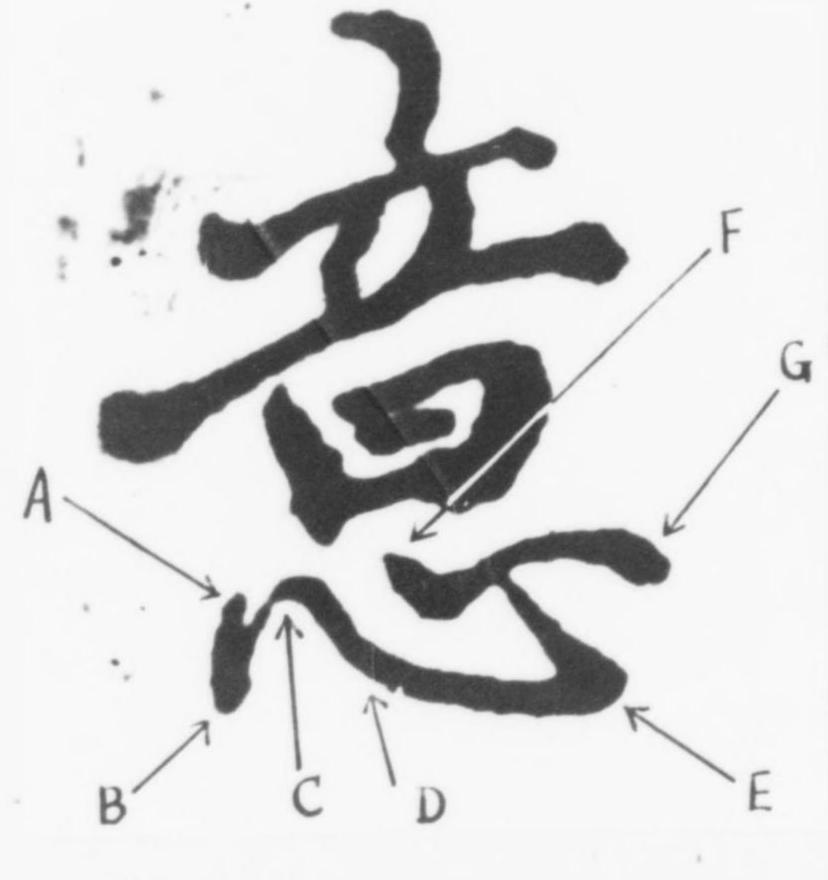
EX. 282



EX. 278



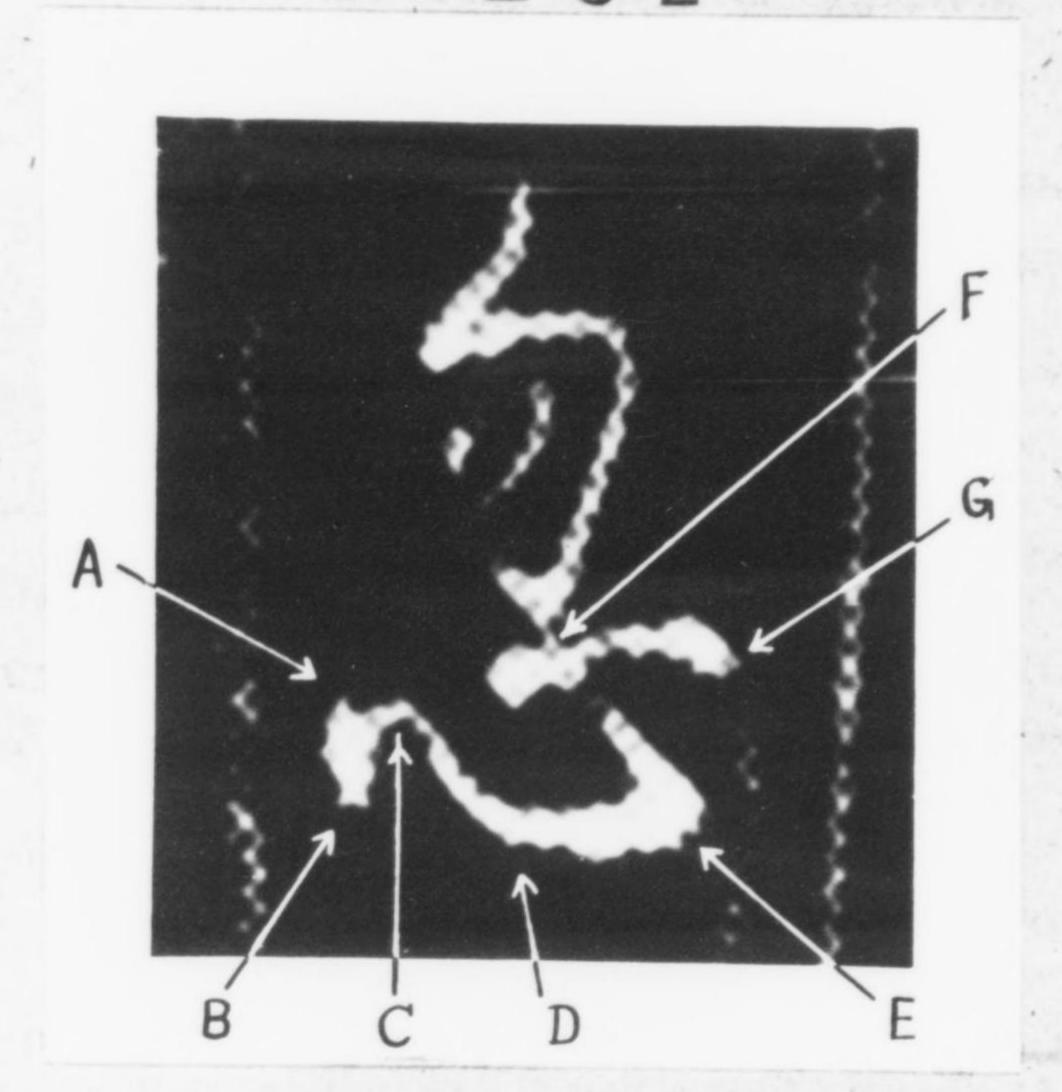
EX. 2 7 8



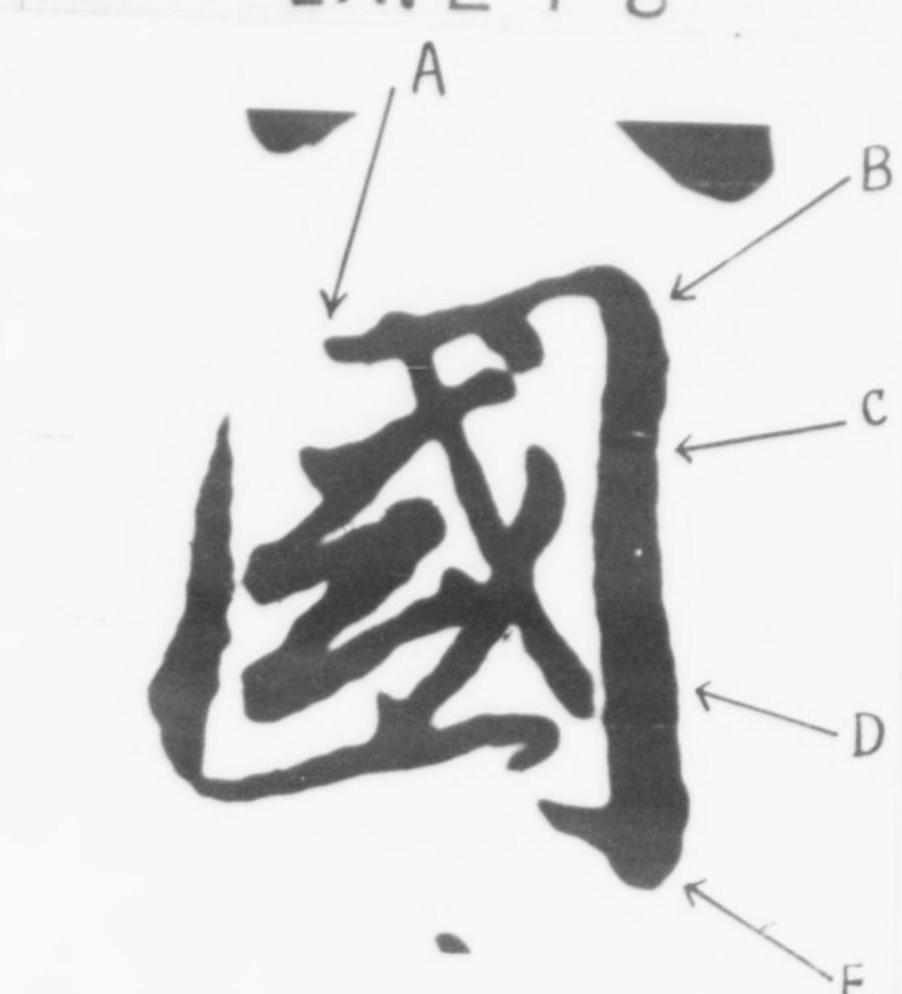
EX. 278



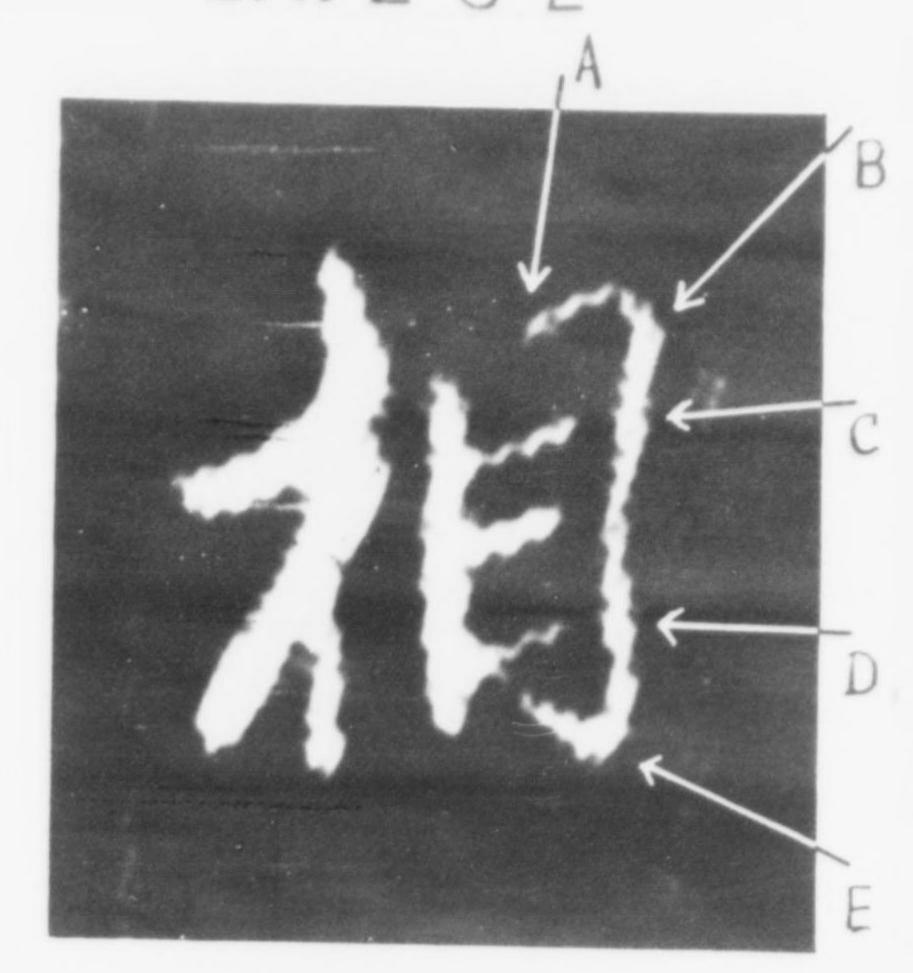
EX. 2 8 2



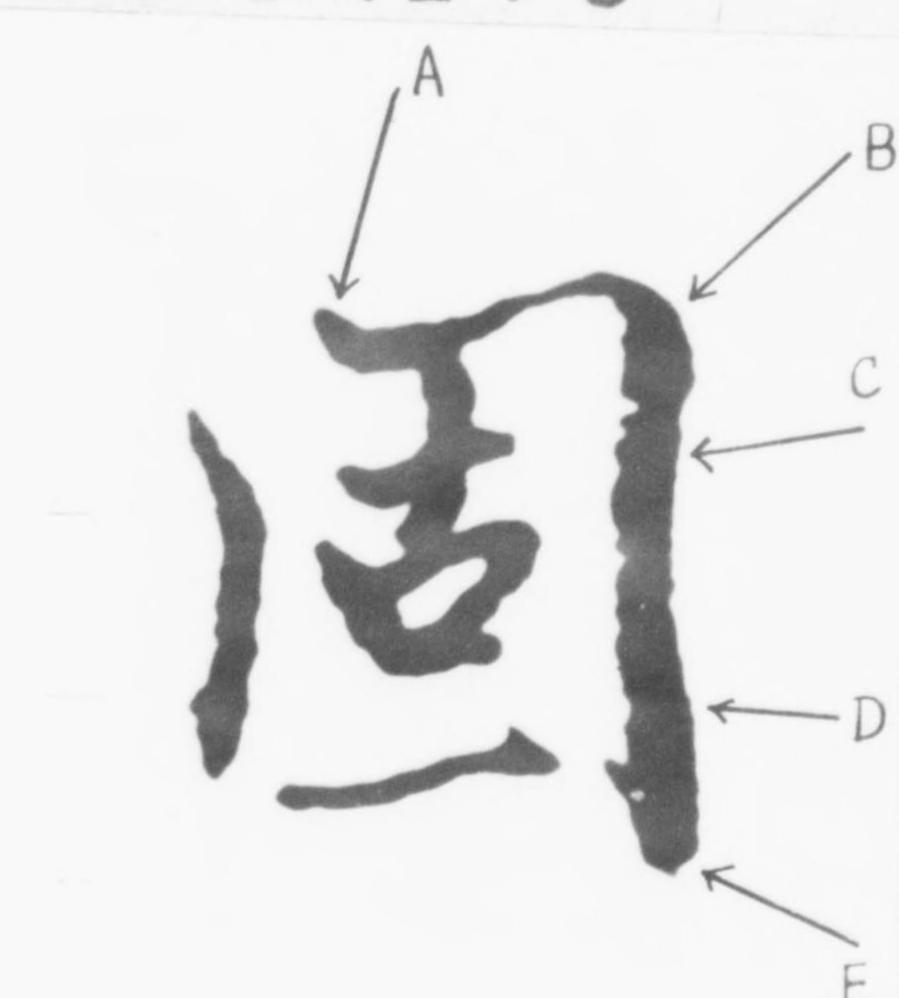
EX. 278



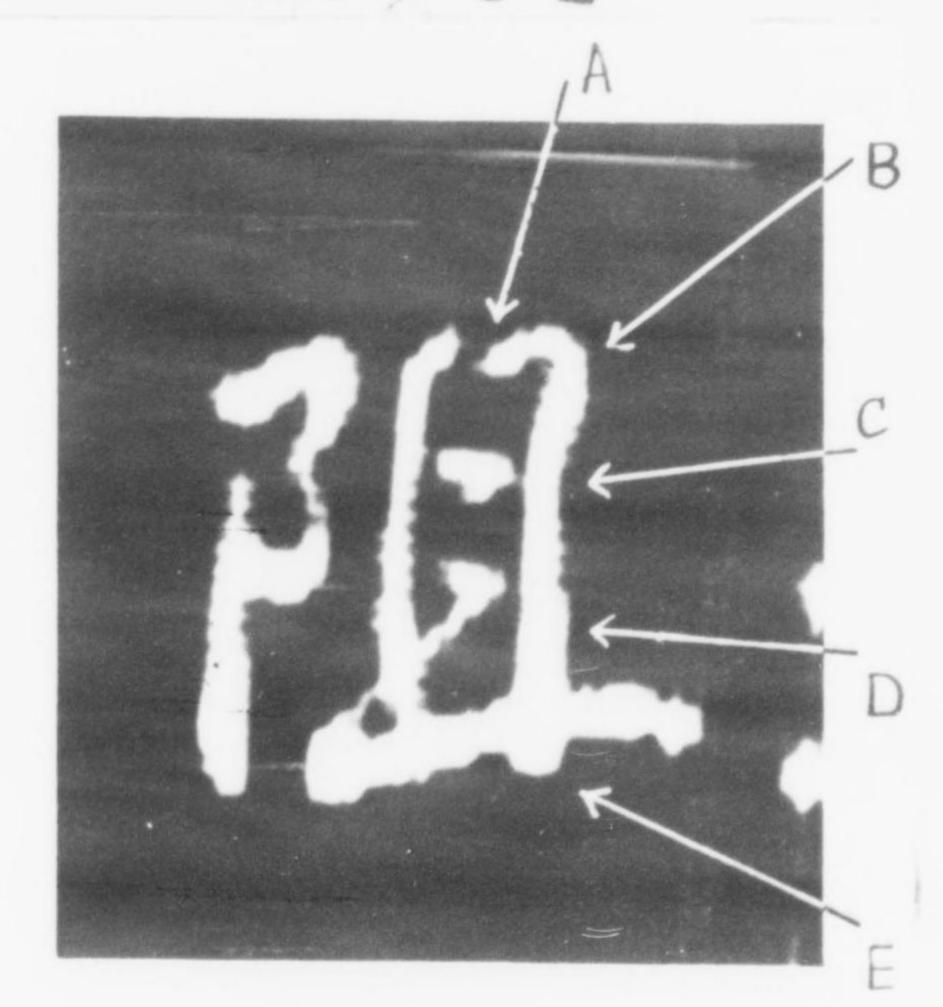
EX. 282



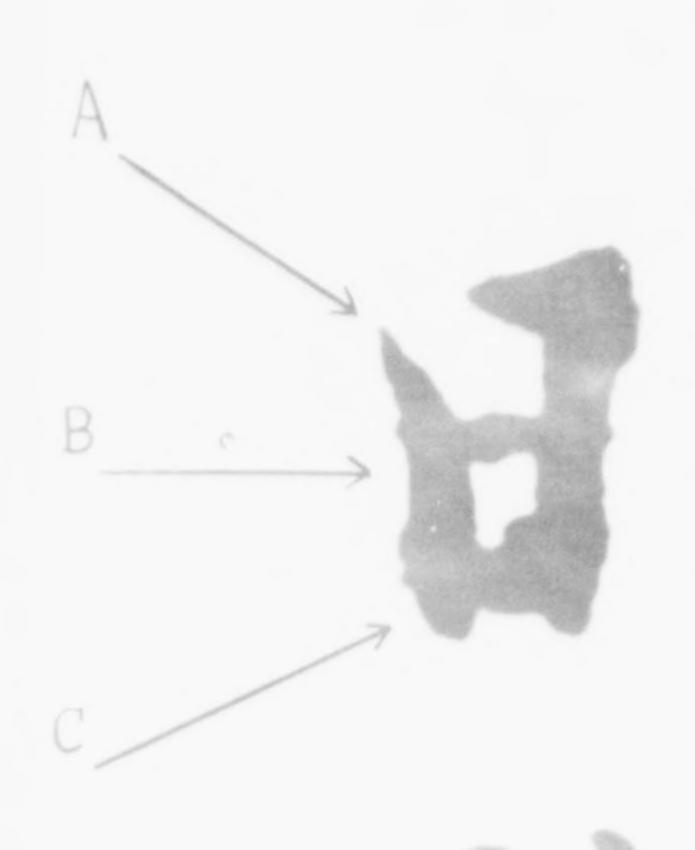
EX. 278



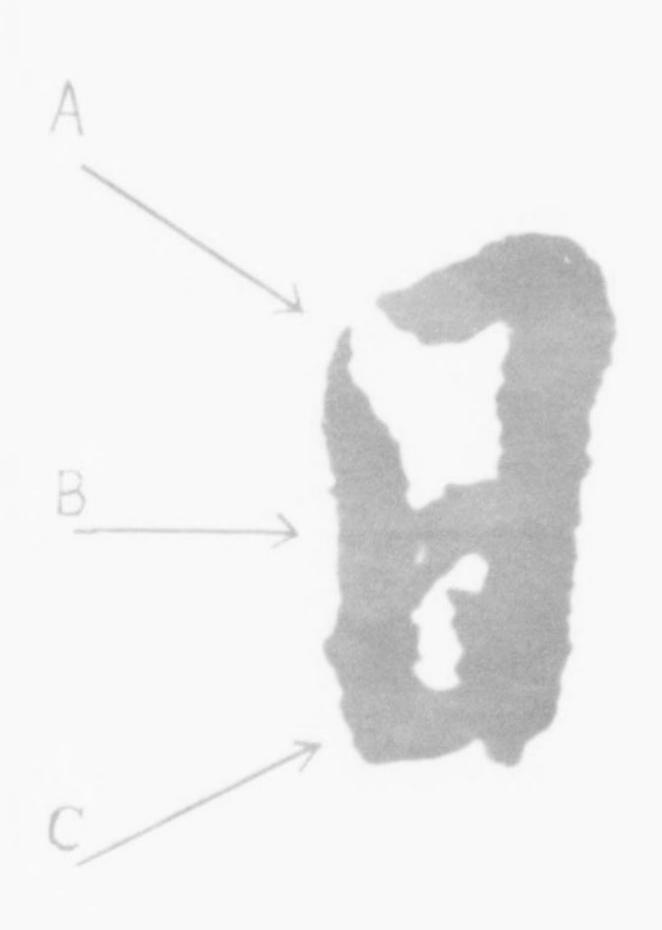
EX. 28.2



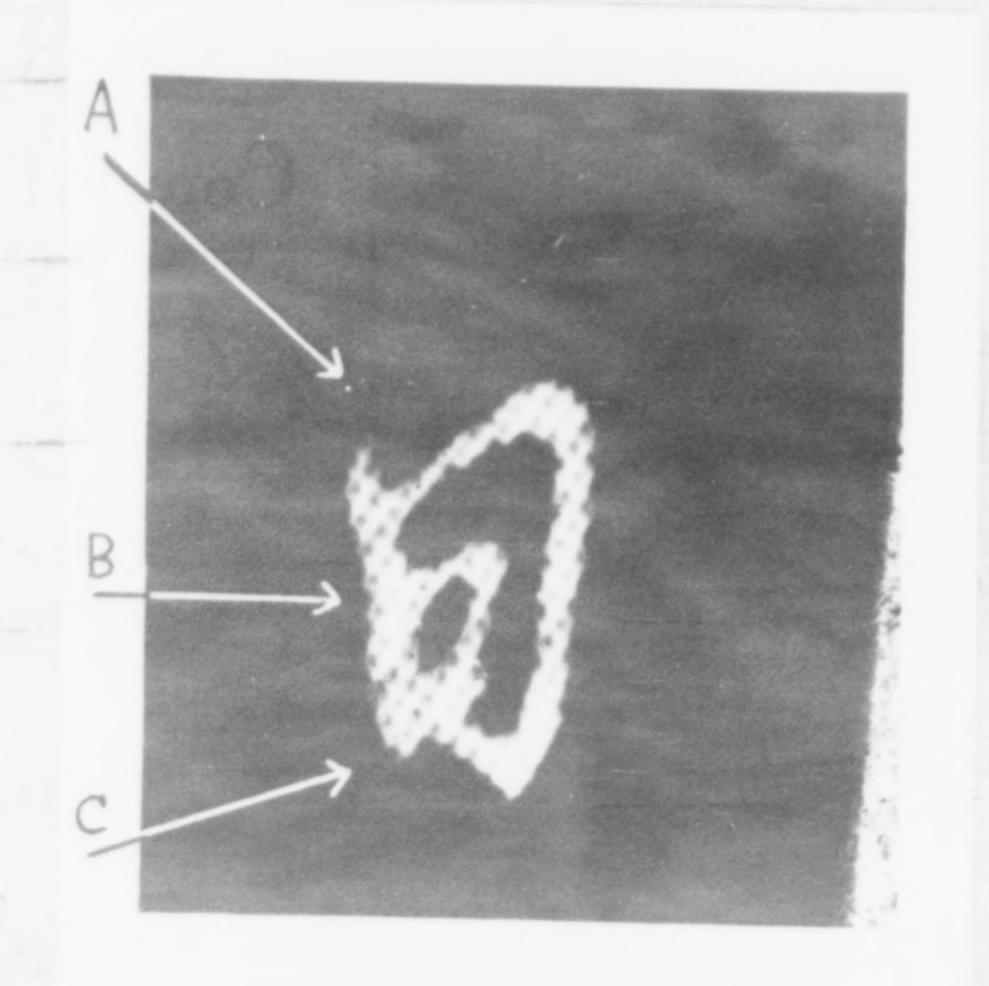
EX. 278



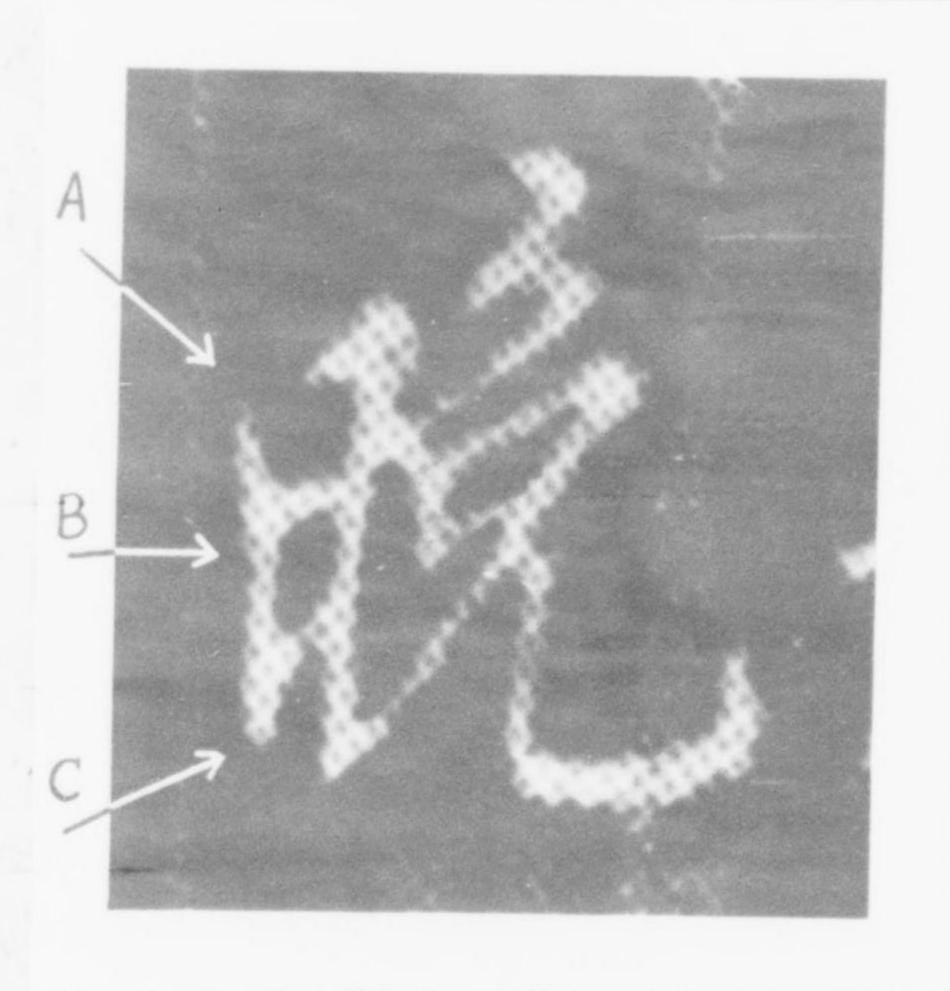
EX. 278



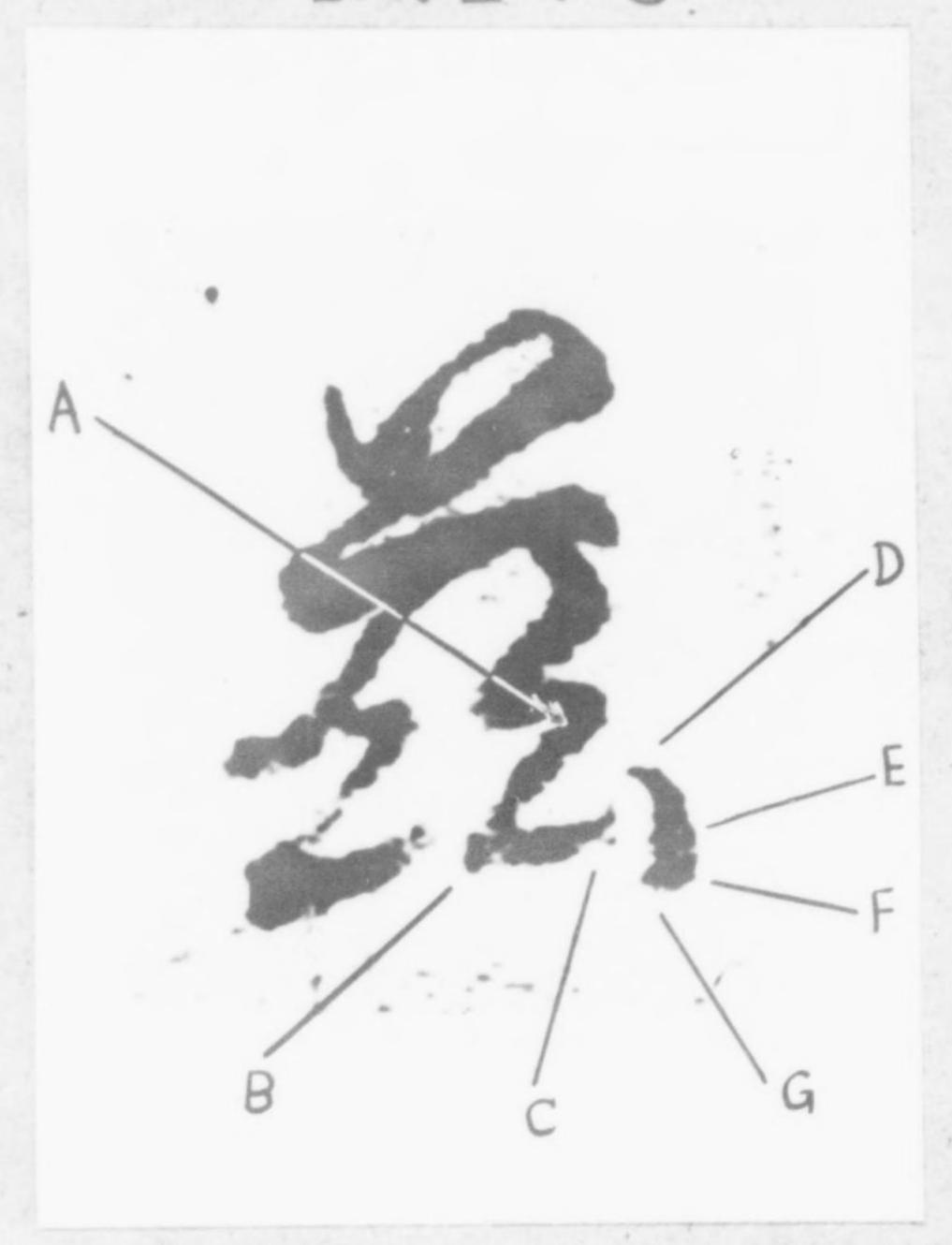
EX: 282



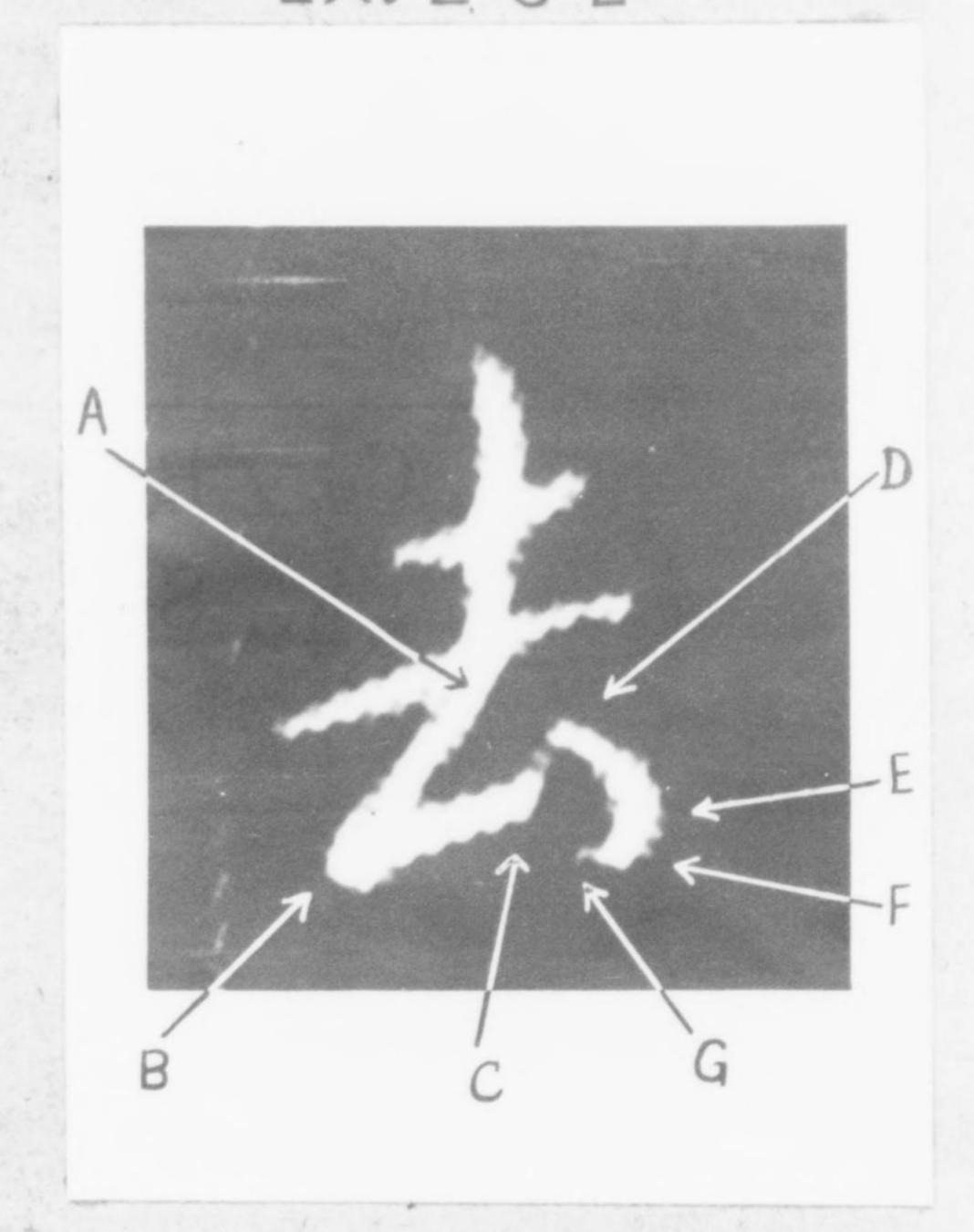
EX. 282



EX. 278



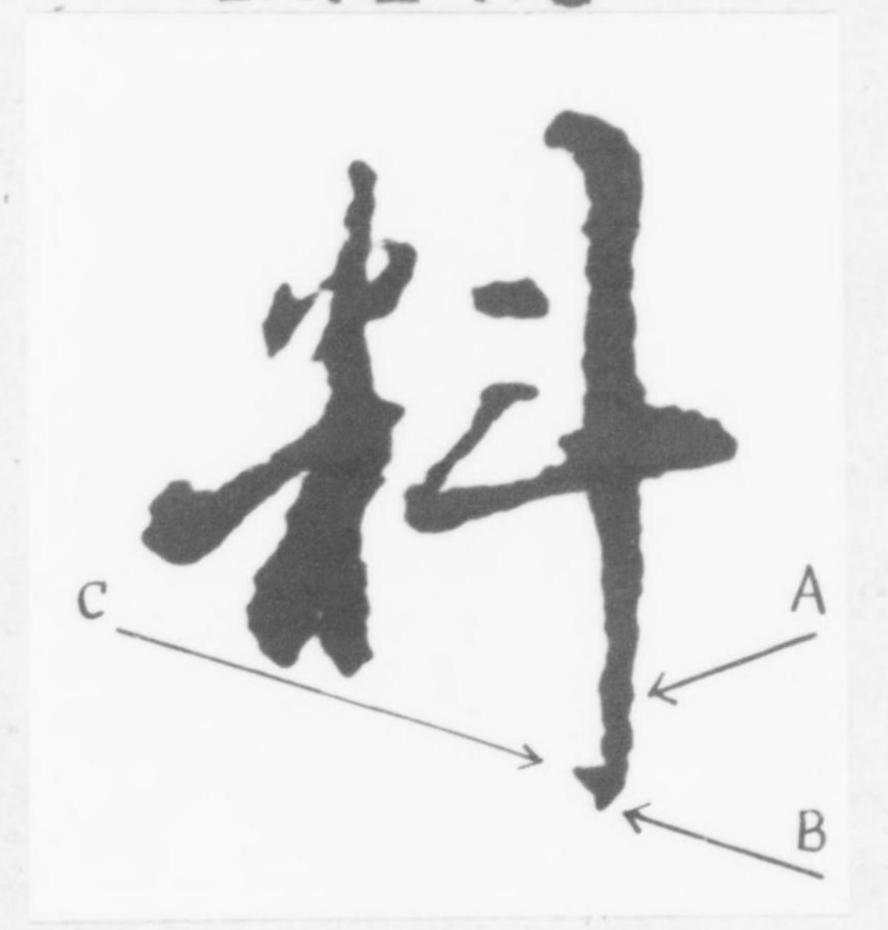
EX. 282



EX. 278



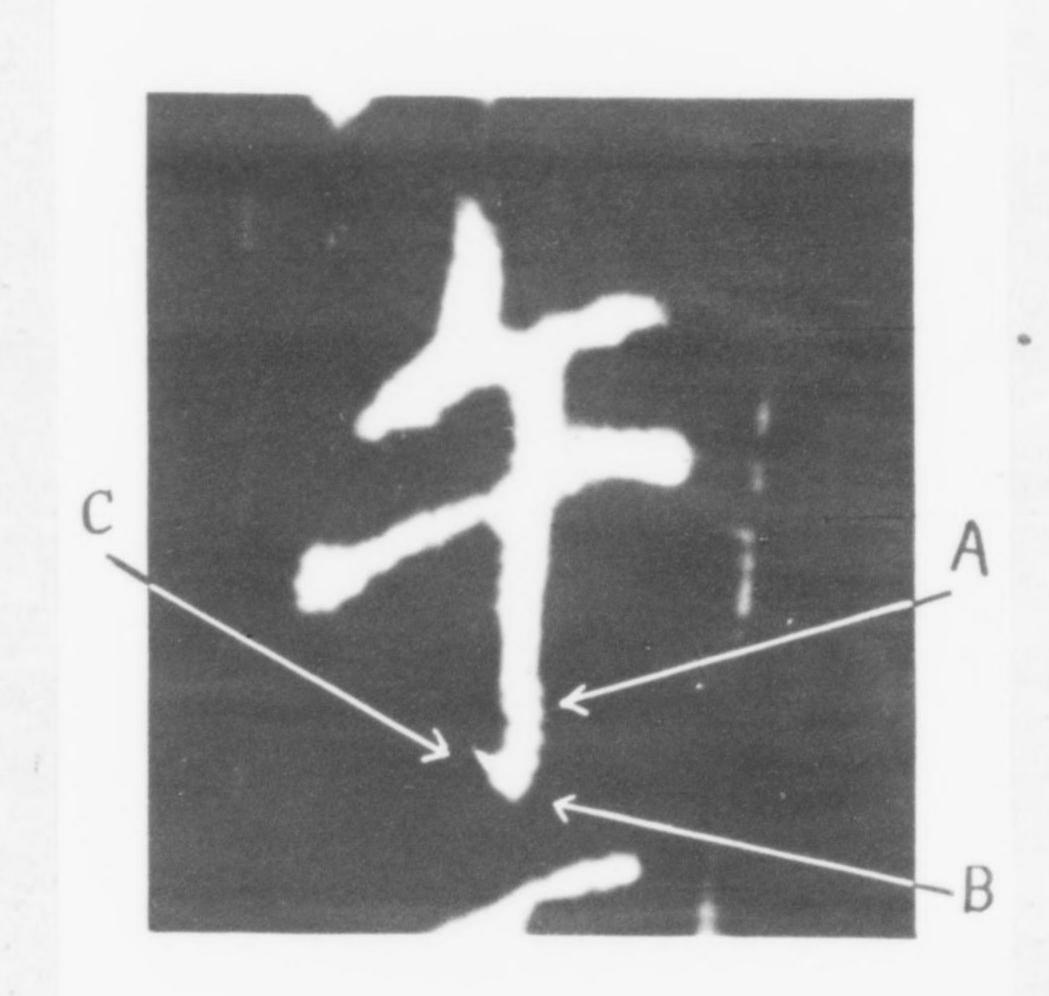
EX. 278



EX. 278



EX. 282



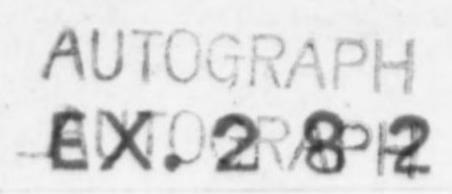
EX. 2 7 8



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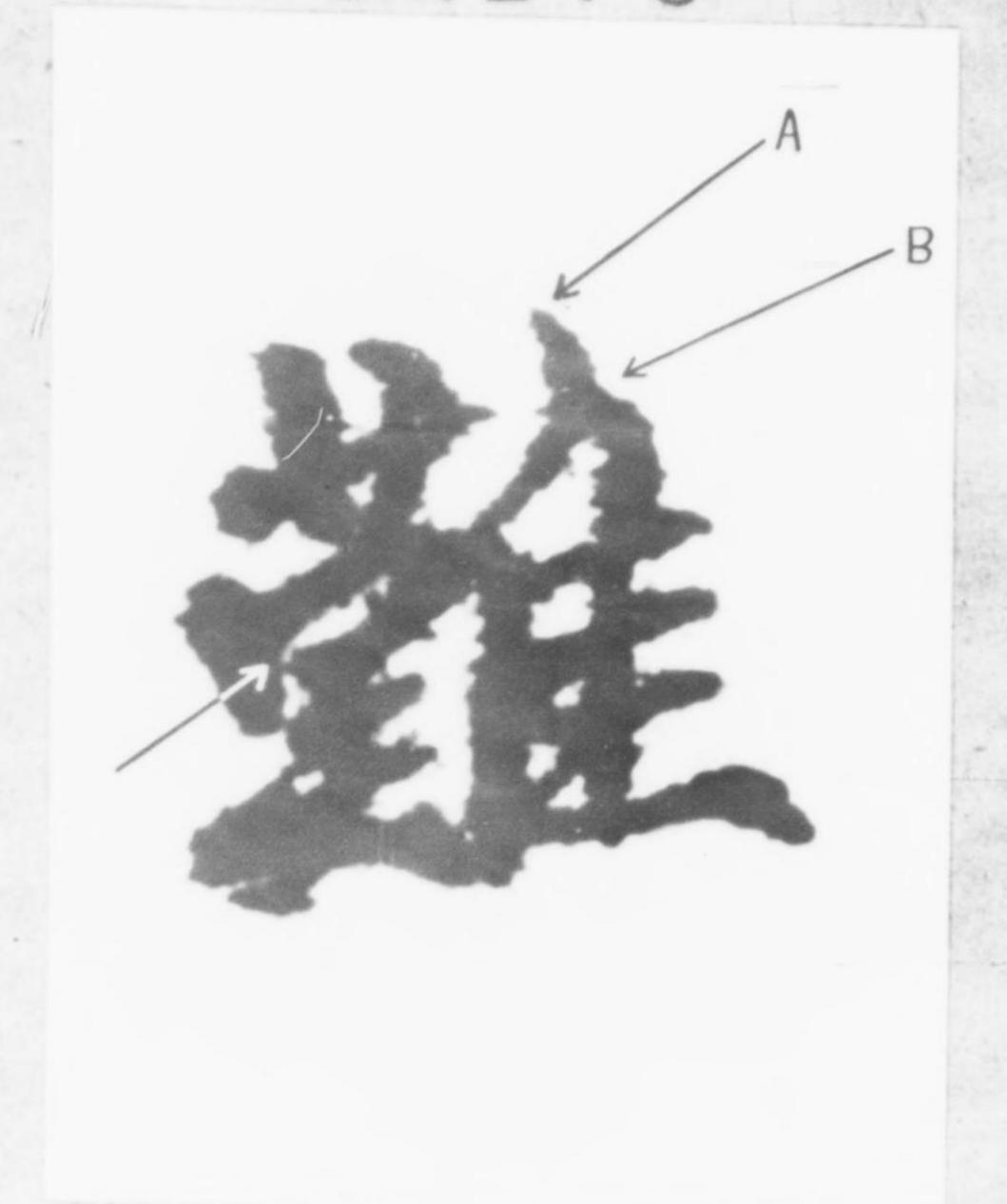
EX. 278



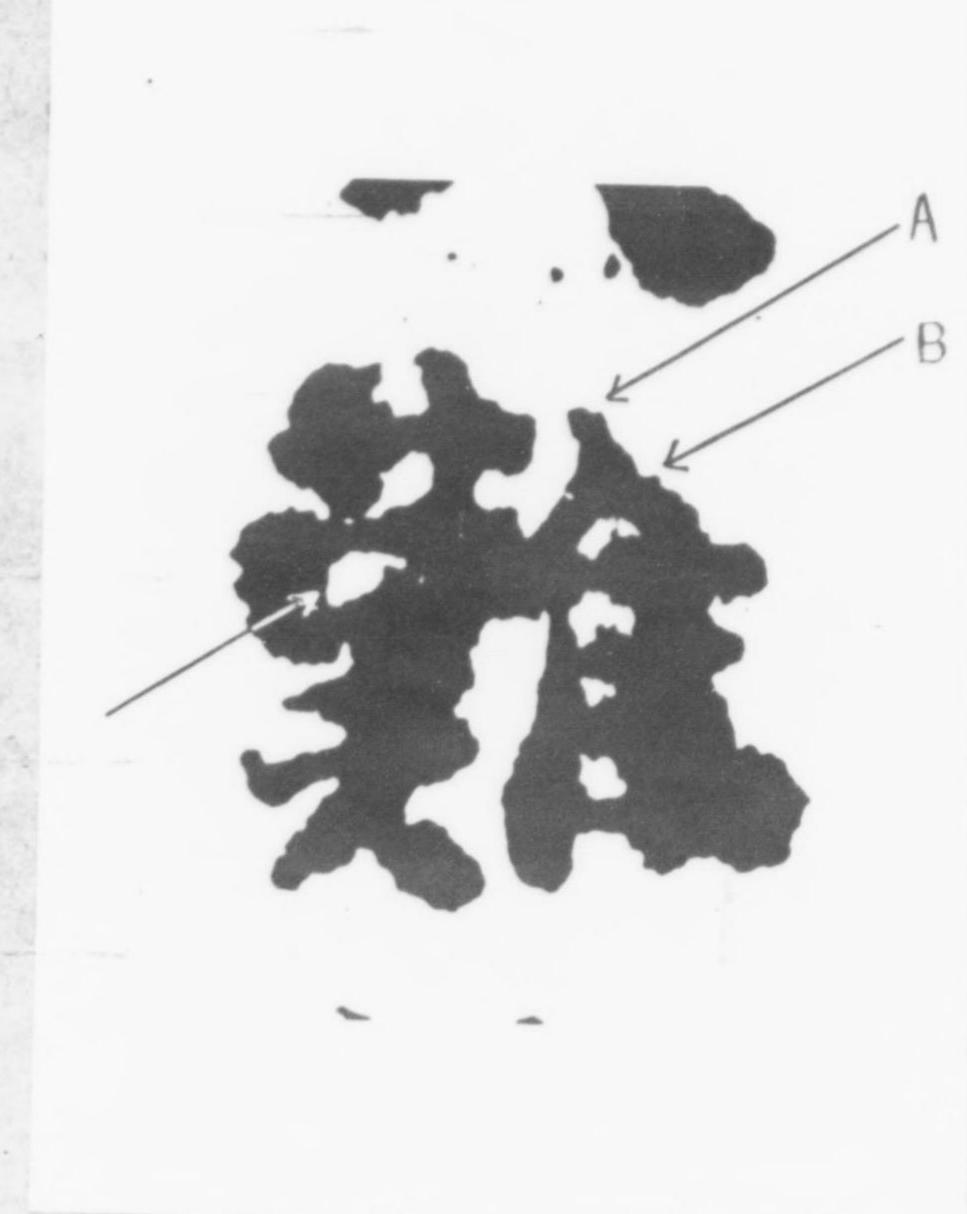




EX. 2.7-8



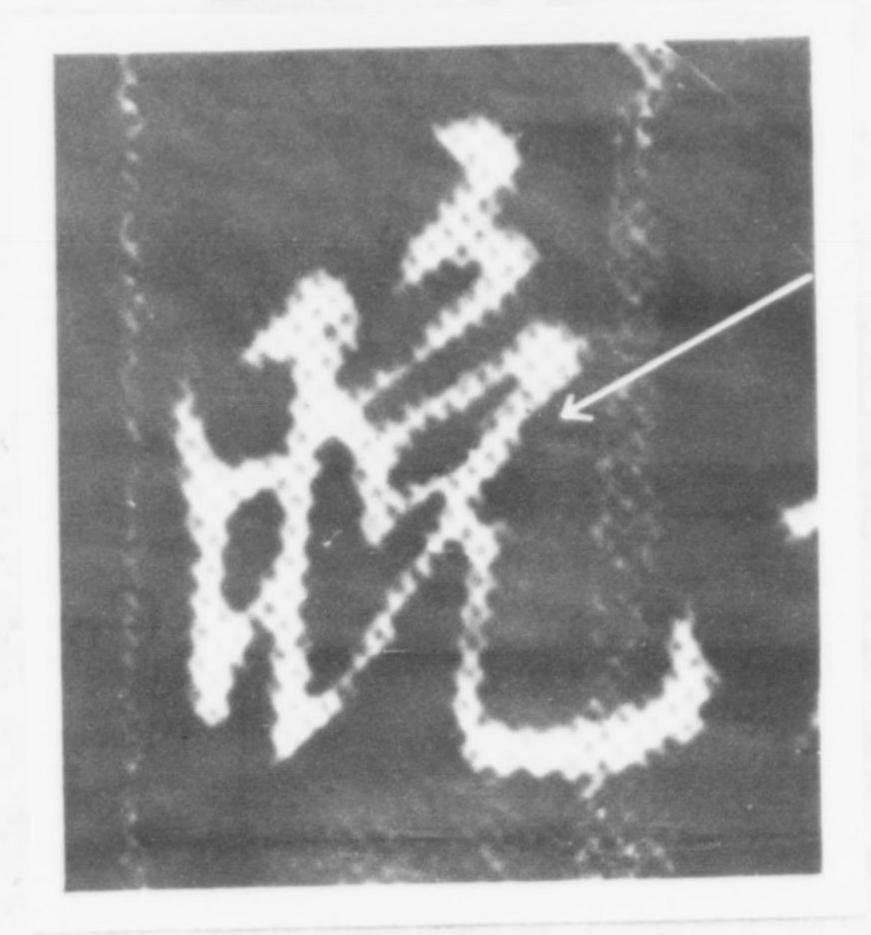
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EX. 282







AUTOGRAPH



AUTOGRAPH



EX. 278

EX. 282





