

## **[Letters to Crick from Maurice Wilkins]**

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Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
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9A Eton Rd NW3  
Tues.

My dear Crick,

How is Cambridge? is  
the cold wind blowing across the fens,  
fisking up the waters of the Cam, whistling  
through the barbed wire on college walls,  
rattling the chain padlocks on college gates  
& causing a healthy glow to appear  
in the faces of bedmakers & undergraduates  
hurrying across the cobbles to the  
college bathroom? Is it blowing  
in under the door of the Strangeways,  
congealing the culture media &  
causing all honest amphibians to  
hibernate? In fact, how are you  
getting on and — by the way: —  
(no that is not to be mentioned)

And when you come to

town next send me a card  
in advance & I can reply by  
phone & suggest a date for  
dinner. I have made some  
very good dinners lately & am  
getting in a barrel of cider.

Do let me know, won't you?

Yours

Maurice Watkins

My dear Nick,  
 How in Cambridge? is  
 the cold wind blowing across the fens,  
 flunking up the water of the Cam, whisking  
 through the banks in a college wall,  
 rattling the downy paddocks on college gates  
 & causing a healthy glow to appear  
 in the faces of bedridden & undernourished  
 hurrying across the college to the  
 college bathroom? Is it blowing  
 in under the door of the Strongroom,  
 longed for the culture media &  
 causing all honest amphibians to  
 hibernate? In fact, how are you  
 getting on and — by the way: —  
 (no that is not to be mentioned)  
 And when you come to

91 Elm Rd NW3  
 Tucson

9A Elm Rd NW3  
 PR1 5740

3 II 48

Dear Nick,

Very sorry to hear about  
 your father — I felt pretty bad  
 when mine died not long ago. And  
 I hope it doesn't upset your finances.

About the flat — many thanks  
 for your efforts & still more thanks  
 to come if they are successful. These  
 lucky things do happen sometimes.

About the weekends — if you  
 would like to bring your girl friend  
 to my place I should be very pleased  
 & would do my best with the help of  
 the Concise Encyclopedia of Gastronomy  
 & a few titbits from Soho. But it  
 isn't very easy to get me by phone at  
 the weekend & I would need some  
 warning to get to Soho first.  
 Anyway —

See you soon

Yours  
 Maurice Wellman



town next send me a card  
in advance & I can reply by  
phone & suggest a date for  
dinner. I have made some  
very good dinners lately & am  
getting in a barrel of cider.

Do let me know, would you?

Yours

Maumie Withins

Thank you very much for the invitation but  
 as I have just got back I would like to stay  
 in town this weekend. Possibly I could come for  
 the next Hardy Club?

on train Innsbruck - Zurich

My dear Francis,

First let me tell you why I am here.  
 I am doing a combined holiday & work trip again.  
 I am going to see Signer the n.a. man in Bern &  
 some of Frey Wyssling's people in Zurich. But the real  
 trip was holiday. First to Munich to pick up a young  
 friend of mine & see the artists beer cellars then  
 to Innsbruck & Bolzano to see Italy. But it is only  
 half Italian so we took a bus down to Lake Garda  
 & stayed at the Gardone Riviera & walked under all  
 the oranges on the trees in the streets & such like.  
 Then a wonderful day skiing at Selva Wolkestein  
 in the Dolomites & back to Innsbruck. Now I  
 am on business to visit the people in Switzerland.

But unfortunately I have to pay for almost  
 all this trip myself which is shocking & unusual for  
 me but already I have another trip planned on the  
 MRC (actually they didn't pay for any other trips but  
 Imeson & other people). I have got much better.

X ray pictures of the sperm squid which show very nicely  
 a whole series of helical layers & one inter  
 middle spacing. These spots will not overlap when a

disoriented specimen is used & I want to do it  
 on living sperm in glass tubes. I believe  
 your friend in Rome offered me use of an  
 X ray tube (I am sure he did) & what I want  
 you to tell me is his address so I can  
 confirm this & can go to Naples (you bet)

I hope name.





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I collect the sperm & go by train to Rome & X-ray them. They live for days & it is all very practicable. I don't know of any X-ray set in Naples but will enquire there too but am very doubtful. I will bring my own camera & any ordinary tube will do. Also I will try living spermatozoa in glass for orientation. No H<sub>2</sub> & hurry up fuss.

I did the transform of the micelle of N.A. projected on a plane at  $\perp$  to the axis & have done more on the layer line intensities also repeated Oster & Riley on the long distances on wet gels oriented. I have found several of your suggestions very valuable but am fairly convinced for many reasons the phosphate must be on the outside. There is just one part of the picture that still puzzles me but if helices are right we must hit on the explanation soon. I am really getting down to the job myself but haven't done anything on models & chemistry as I think the picture holds a key not yet recognised which will then more or less directly give us the model. I now take my own X-ray pictures & have made new cameras (hence better sperm pictures). But I believe as you that the key to N. protein lies in the crystalline picture. The exact crystallinity is of interest in that it gives us definitely the general micelle arrangement if you follow me. Franklin bothers often but doesn't succeed in helping me. Since I reorganised my time so that I can concentrate on the job, she no longer gets under my skin. I was in a bad way about it all when I last saw you.

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When I saw Jim last before Christmas he said you people couldn't build a model along your lines if that is so it smacks of things a bit anyway I am pretty certain the phosphates are on the outside. I won't start making any references to the 'business' between you people & us over N.A. but look forward to discussing all our latest ideas & results with you again. Why don't you come & have lunch with me when you are next in town?

About Naples we must also separate heads & tails (electrophoretically?) & Geoffrey is interested in isolating N.P. I think it could all be done in 2-3 weeks & be very worthwhile & cost MRC very little. The sperm is the only way I know of getting neatly oriented live N.P. Also I took a nice picture of living & rot trypanins in a glass tube & think there is a whole new field there working with liquid cameras or monochrom (Franklin's pet) to show the pictures of living nuclei or whole cells with negligible cytoplasm are the same as disoriented N.P. as isolated by Sieckmanns. Thus we may be able to prove the helical ideas for ordinary cells as well as special low water content cells such as sperm. But apart from little excursion of a day or so this must wait.

Did you hear I have got a RCO invitation? isn't it grand! In some ways I feel I am a very lucky fellow. And there I hope to collect sperm bundles which contain separate chromosomes & display pictures of each of the 2 chromosomes



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in the cell spirals & unspecialised etc.  
This is rather ~~gilding the lily~~ but  
may be very useful in a year or 2's time to land  
the X-ray barman more with real chromosomes.

I hope I don't go to the devil with all these things  
but so far I think they are well worthwhile from  
the work standpoint.

Give my nicest regards to Otilie  
& tell her I thought of her while I looked at the  
oranges in Italy.

I hope Bagg neither banks nor bits.  
& your unit is filled with happiness. If these  
hopes seem foolishly extravagant please forgive  
me.

Give my regards to John & tell him I wrote  
a series of letters to Chagoff.

Yours M.

Have you a better flat for me?



BIOPHYSICS RESEARCH UNIT,  
KING'S COLLEGE,  
STRAND,  
LONDON, W.C.2.  
TELEPHONE: TEMPLE BAR 5651

Thurs.

My dear Francis,

Thank you for your school of daily letters! I meant to ring you tonight & then realised you had no phone since moving. I will be up on Sat afternoon. Geoffrey is staying behind as he has some things which have to be finished before we go to Brussels. It is very nice of you to offer to put him up.

L.H. is interested in rot. pol & feels Boyes might not be much use so maybe that is the best line.

I should have replied before

(I feel alright today) but was feeling lousy & thought I might be <sup>too</sup> depressing & should keep away from humanity. Rosie's colloquium made me a bit sicker. God knows what will become of all this business. They talked for  $1\frac{3}{4}$  hours non stop & she effectively refused to answer questions. They had a unit cell big enough to sit in (but not sit in it).

It would be nice to see the Monkham. He is certainly good company & I remember her as a nice person.

It's very nice of you to get Pauling's paper & I will tell you all I can remember & scribble down from Rosie.

I would like to speak to Broad & get a blue print of a v.o. from him.

I will telephone before then get to you. Tried telephoning tonight & they got all diff numbers & ended up with poor Ingram who very nicely offered to bring you a message. Sorry I have been so deplorably slow in replying. I hope this hasn't been very much of a nuisance. Special regards to Odile. M.





BIOPHYSICS RESEARCH UNIT,  
KING'S COLLEGE,  
STRAND,  
LONDON, W.C.2.  
TELEPHONE: TEMPLE BAR 5651

Sat.

My dear Francis,

Thank you for  
your letter on the polypeptides.

I think you will be interested  
to know that our dark lady  
leaves us next week & much  
of the 3 dimensional data is  
already in our hands. I am  
now reasonably clear of other  
commitments & have started up  
a general offensive on Nature's  
secret strongholds on all fronts:  
models, theoretical chemistry,  
& interpretation of data in physics  
& comparative. At last the decks  
are clear & we can put all  
hands to the pumps!

It won't be long now.

Regards to all  
yours ever Mr

P.S. may be in Cambridge next week.



RIO DE JANEIRO

Nº 460



Christ's right arm produced  
 a distance equal to that between  
 his hand & elbow would reach the  
 to Christ & his. Am. Silenus would  
 see my pensione. The scenery  
 architecture weather & women  
 are exceedingly beautiful &  
 I have even managed to do some  
 work on hemaglobin in developing  
 red cells & testing the new solid  
 reflector (it's good). The phys  
 meeting was fascinating. Tell  
 Jim I may have something new on  
 trans metabolism (n.d. on work).  
 I have seen a real mackerel.  
 Trying to get coccidia for chromosomes in  
 sperm heads & ticket to La Paz 12.00 ft  
 & Lima. Regards to all & the unit H.

Francis Crick

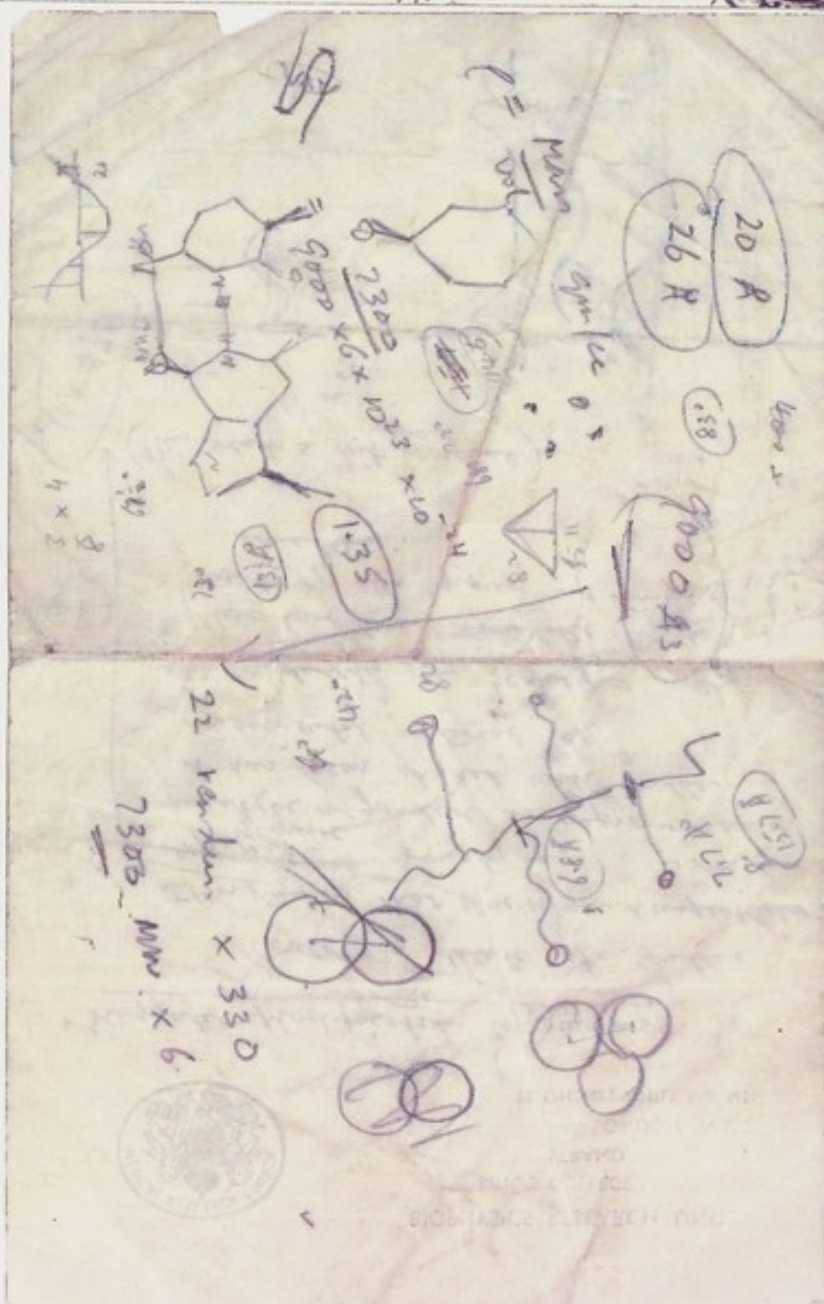
Cavendish Laboratory

Free School Lane

Cambridge

England

VIA AEREA







BIOPHYSICS RESEARCH UNIT,  
KING'S COLLEGE,  
STRAND,  
LONDON, W.C.2.  
TELEPHONE: TEMPLE BAR 5651

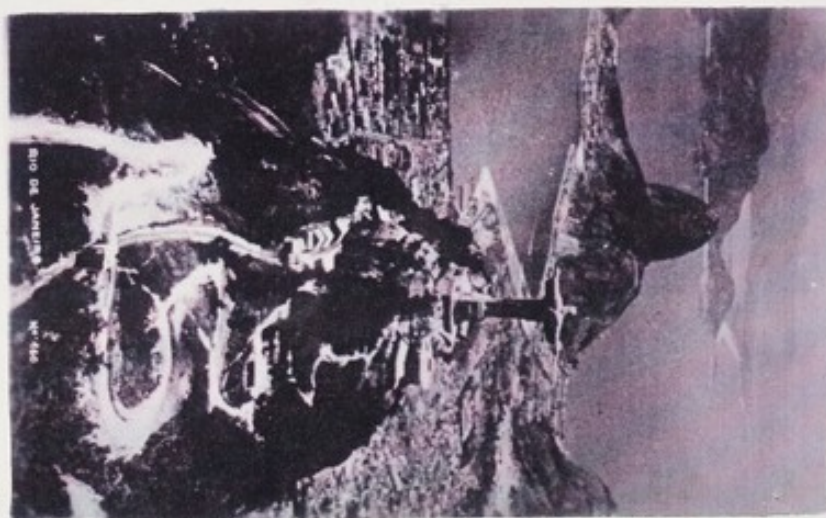
Suggested Modification to your mss.

Could you delete the sentence  
it is known that there is much unpublished  
exp. mat. <sup>of course</sup> Simply say. The structure  
must be regarded as improved until  
it has been checked with fuller  
experimental material e.g. 8.

delete very beautiful & say  
we have been stimulated by the  
work of the group at Kings or  
something.

M.

(This reads a bit ironical).





BIOPHYSICS RESEARCH UNIT,

KING'S COLLEGE,

STRAND,

LONDON, W.C.2.

TELEPHONE: TEMPLE BAR 5651

Fri

My dear Francis,

So glad to hear you are coming up. I would be very glad if you & Odile could come to dinner on Sat but there are snags as you know:

- (a) To avoid exhausting Odile with shop could you come to the lab on Sat afternoon? And if you brought some nice young woman who has no interest in proteins or nucleic acid (e.g. Patry might like to take the risk) with you & Odile to dinner this might prevent our degenerating into shop. The best safeguard is a really attractive young woman and this is why Odile does not quite fit the boat one who is unattached or at least unaccompanied

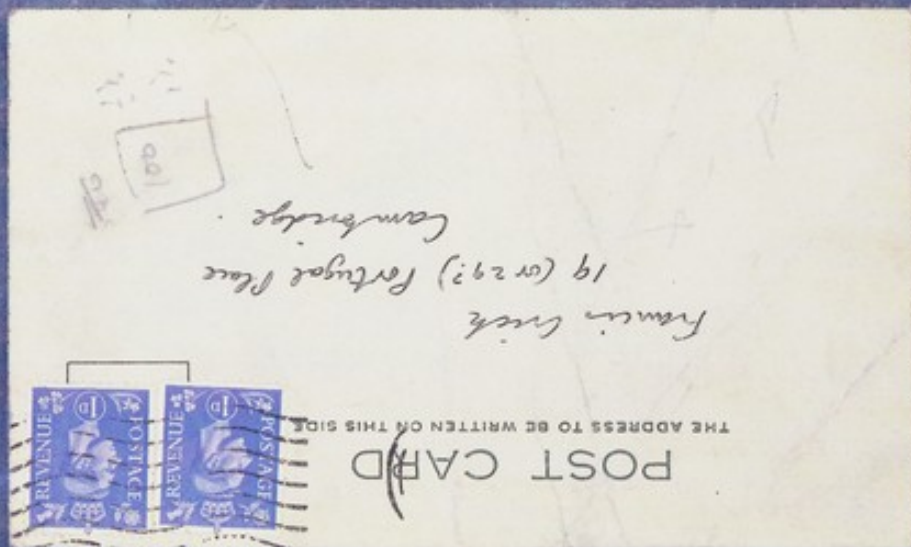
you will be interested to hear that all is safe in the hands of Cole who may be able to get it in April 26. There was a frantic chase at the last moment — no typists for nighting (Francis helped us out) & two missing figures which after a long search turned up in Rembley & in Rosie's room. If Pauling is interested please show him my draft miss. M.

STRAND W.C.2.

KING'S COLLEGE (LONDON).

TELEPHONE:  
TEMPLE BAR 5651  
(5 LINES).





by her husband. Well so much for  
the evening.

(b) About staying the night I would be  
horribly delighted but am a bit doubtful  
this weekend as I am in such a state of nervous exhaustion  
that I intend not waking up all Sunday  
which with the geometry of my flat makes  
visiting rather awkward. (I know this sounds awfully  
mean)

We have found apparently that d.n.a.  
(nucleic acid) does an  $\alpha$   $\beta$  Keratin type of  
transition & are hot on the trail hot is  
the word & working till we drop. I can still  
stand up most of the time but cannot answer  
for what state I will be in on Saturday.  
but hope to recover a bit on Sunday

We have X rays, brief  $u$ , u.v. destruction, & mech  
properties evidence all ready but don't mention it  
yet to anyone please. We hope for e.m. & i.r.  
evidence too. Love to Odile, down with science,  
M.