

**IPSWICH GEOLOGICAL GROUP**

**BULLETIN NO. 13.**

**( December 1974 )**

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BRIEF DESCRIPTION OF SILUBIAN(?) SEDIMENT FROM A BOREHOLE SAMPLE AT IPSWICH MUSEUM.

INTRODUCTION:

The sample comes from a borehole made in 1894-5 at Stutton, from a depth of circa 1,000 feet. In hand specimen it is a grey/green well indurated fine grained rock. Bedding is only apparent on polished surfaces as small streaky lenses. A poorly developed slaty cleavage is present, and also a fracture cleavage along which calcite has crystallised. No macro or micro invertebrate fauna was found.

DESCRIPTION OF THIN SECTION:

1) Texture;

The sediment is fine grained, the clasts having a maximum diameter of 0.05mm  
 0.05 - 0.025mm .....25% }  
 0.025 - groundmass .....50% } percentage of relative grain sizes  
 indistinct groundmass.....25% }

Within this size range the sorting is poor. The grains are angular to subrounded - mostly subangular, but with moderate sphericity.

The rock is generally homogenous, but there is some differentiation between finer and coarser layers; the grains are touching (grain support) and are well packed giving the rock a low porosity. The clay minerals show a poor degree of orientation parallel to the primary laminations. The clay minerals, poor sorting and subangular grains show the sediment to be immature. The fine grained matrix is the bonding agent.

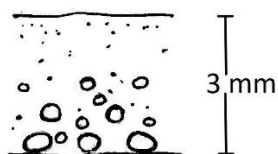
2) Mineral compositions

Terrigenous materials;

- I) Quartz, 60% of slide, evenly distributed, random orientation; size ranges from 0.05mm downwards; grains mostly subangular (but subrounded to angular in range) with moderate sphericity; many clasts show strain extinction.
- II) Plagioclases, 8%, (as for quartz); contains many inclusions of breakdown minerals; most grains fall within the Andesine range.
- III) Microcline, less than 1%, (as plagioclase).
- IV) Muscovite, 3%, flakes up to 0.075mm long; orientated subparallel to bedding.
- V) Biotite, less than 1%, (as muscovite).
- VI) Clay minerals, 10%, include sericite, illite, etc., forming part of groundmass.
- VII) Chlorite, less than 3%, growth post depositional as orientated parallel to slaty cleavage (at 50° to bedding laminae).
- VIII) Unidentifiable groundmass, 15%.

3) Sedimentary structures;

I) Greywacke graded bedding:



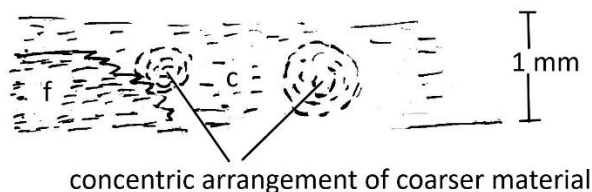
II) Ripples:



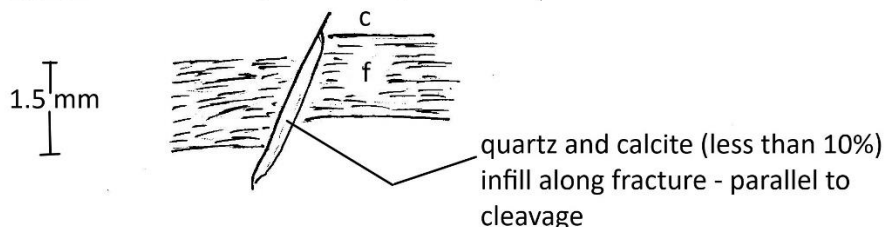
III) Slump:



IV) Balls:



V) Microfaults:



Laminations not apparent in hand specimen, but they are in thin section by grain size differentiation.

INTERPRETATION:

The minerals present indicate an essentially "acid" and "intermediate" source region, perhaps of granites and gneisses. There is a distinct lack of the more "basic" minerals (e.g. amphibole and pyroxene) showing a corresponding lack of "basic" source rocks. There is also a lack of lithic fragments.

The fine grain size suggests that the source area was a fair distance away, but the angularity of the grains and presence of biotite and andesine suggest, a rapid form of transportation from the source and quick burial (i.e. before breakdown of these minerals occurred). Thus, the source area must have been rapidly eroded with a lack of chemical weathering.

The graded bedding shows that the particles settled out from suspension in quiet conditions. The ripples and balled structures suggest periods of low velocity current action, while the flow structures indicate slumping or density current movement.

NAME

The rock is essentially an immature siltstone. A more precise name would be "a graded feldspathic subgreywacke".

R. G. DIXON.

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ORWELL PARK OBSERVATORY.

Over a century ago, a 10ins aperture refracting telescope was built by an eccentric millionaire, Col. Tomlin. The story of the observatory however began even further back.

In the 18th century Admiral Edward Vernon lived at Orwell Park in a vast mansion which he had built. Known in the Royal Navy as "Old Grog" he was perhaps best remembered as the man who watered down the men's daily rum ration. Old Grog, by the way, refers to the material his cloak was made from and the watered down rum was called 'grog' because of Vernon's nickname.

At that time there was no telescope at Orwell Park. The observatory was built by Vernon's nephew Colonel G. Tomlin who was extremely wealthy. He built, owned and maintained the 16 miles of railway from Ipswich to Felixstowe. He also owned the entire Felixstowe dock. He terrorised the inhabitants of Nacton Village. He could see the village from his mansion and regarded it as a blot on the landscape so he had it demolished and moved to the other side of the woods where he did not have to look out onto it every day. In 1872 he had the telescope built by Troughton and Simms of London. The refracting telescope has a clear aperture of 250mm. The objective lens was made by Mertz of Munich. Being a millionaire Tomlin was not afraid of spending money to obtain the best. The mounting of the instrument alone cost £1,345.12s.8d, and the objective lens alone cost another £333.6s.8d. making a total cost of £1,678.19s.4d. There is no record of the cost of the

observatory building itself but this too must have been very expensive. The dome is made of mahogany with copper sheeting on the outside, now green in colour because of age. This dome is some sixty feet above ground level.

There is another room adjoining the dome itself which houses the transit telescope, a refractor of 7.5cm. aperture. The graduations on the setting circles on the transit telescope and the main instrument, and the P.A. graduations are engraved in solid silver.

Col. Tomline hired a professional astronomer to help him with his hobby and to help him set up the telescope and find interesting objects to look at. There was a lift which travelled from the ground up to the observatory, powered by a hydraulic water system from a manual pump which was operated by one of his many servants. Nobody was allowed to travel in the lift except for Col. Tomline himself. The astronomer and everybody else had to climb the stairs. There is no record of who the astronomer was.

Around the turn of the century Tomlin died and the next owner of Orwell Park was not an avid astronomer like Tomlin and did not use the observatory. The observatory had been disused since the First World War certainly, until in 1930, Mr. E.H. Collinson, asked and was given permission to use the telescope. Mr. E. H, Collinson, now a director of the B.A.A. Mars Section says that all the equipment was then in working order. However, he did have problems in rotating the dome.

The dome itself is rotated by turning a large wheel which is the wheel of a rack and pinion system. Apparently, the dome used to stick and Mr. Collinson recalls "perilous attempts to free the rails from ice by climbing out of the shutter onto the roof. The view of the river in the moonlight was, however, delightful".

Climbing out onto the roof is indeed perilous, with a sixty foot drop. As for the views Orwell Park is in very picturesque surroundings. It is on the northern banks of the River Orwell which is one of the most beautiful rivers to sail down in the country. There is a huge private park with many trees. Looking across the river one can see yachts and ships sailing down the river and with the telescope one can read the sign on the public house across the river at Pin Mill which is over a mile away.

Mr. Collinson made his first observation of Mars using the Orwell Park telescope, observing the apparitions of 1931 and 1933. He also made observations of Jupiter. In 1935 Mr. Collinson acquired his own 10" reflecting telescope and stopped using the Orwell Park refractor.

In 1936 the Pretymans family tried to sell the telescope. His agent wrote to Spencer-Jones, the then Astronomer Royal. Spencer-Jones told him to advertise it in the B.A.A. Journal, or to write to C. Baker of High Holborn, London, a second-hand telescope dealer. Pretyman, the owner of Orwell Park, had his agent write to C. Baker who sent round his partner Mr. C. Lers-Curties to inspect the instrument and to borrow the objective lens to test it. The Mertz objective lens was tested in July 1936 and it was concluded that because of some defects the objective lens was not a first class one and not good enough for exacting work, although admirable for demonstrations and instruction.

Pretyman had been told by the Astronomer Royal that because the telescope was so massive and immobile, no offers for it would exceed £100. Pretyman tried to give the telescope away to Eton College, but they declined. After that Pretyman seemed to have stopped trying to dispose of the telescope and left it.

Three years later the Second World War broke out and the building was requisitioned by the army who used the observatory as a look-out post. It was during the army's occupation that the decay of the observatory really began. The sidereal clock was taken, the automatic tracking system of the telescope was broken and the transit telescope was dismantled. The lift up to the observatory, although still intact, no longer works.

In 1945 the army left, and the observatory was in a sorry state. Pretyman sold the mansion and it was made into a public primary school, and the pupils did not use the-telescope.

In 1947 the Ipswich Astronomical Society was formed whose membership reached about a hundred. They did much work to redecorate the observatory and in 1953 observed the famous apparitions of the

comet Arend-Roland. In 1957 they broke up because their secretary stepped down and nobody would take on the post and because permission to use the observatory was withdrawn. A new astronomical was then formed by Mr. J. Easty which is called the Orwell Astronomical Society (Ipswich) which is still in existence today. They are a band of enthusiastic, although inexperienced, amateur astronomers.

The Orwell Astronomical Society (Ipswich) has done a great deal of work in repairing the telescope and observatory during the last two years to restore them to their original splendour. The work involved was, among many other things, repairing the automatic tracking system of the telescope, re-plastering the observatory walls, repairing the dome shutter and generally making good the years of misuse and disuse the telescope and observatory had taken over the previous years.

Much work still remains to be done, but finances for major work is very low, but the instrument is now in better condition than it ever was for during May to July 1973 the eyepieces and the main objective lenses of the telescope and the transit telescope were taken out and 'cleaned up'. This 'cleaning up' consisted of refiguring and polishing which was done for us by one of the leading optic specialists in Gt. Britain. He corrected the original manufacturer's errors, corrected the defaults in the lens as stated in the 1936 report and re-polished all the optical parts of the telescopes so that the instrument is suitable for exacting research work.

Repair work was accomplished so quickly that the observatory was considered sufficiently ready to open to the public in September 1972 to celebrate the telescope's centenary. This open day together with the open day in April 1973 provided the Society with monies to do the necessary work to the observatory and telescope although there is still some major work which has to be done to the observatory when finances allow, it.

C. RADLEY & R. M. CHEESMAN.

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R. Markham.

FINANCIAL STATEMENT : GEOLOGICAL GROUP, 1971-1972,

- Sept. 1971 - Dec. 1972.

<u>EXPENDITURE</u>	£. p	<u>INCOME</u>	£. p
Postage, Newsletters 29-36.	13.15	Carried forward from 1970-1971	5.61
Postage, Bulletin 11.	2.25	Subscriptions	20.50
Envelopes, Newsletters 29-36.	1.08	Donation	15
Envelopes, Bulletin 11.	75	Interest on bank account	<u>1.11</u>
Stencils, Newsletters 31-33.	21		27.59
Duplicating Paper	<u>5.26</u>		
	22.70		

Carried forward to 1973: £4.89.

(R. A. D. M.).

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