On a 3-Amino Quinazoline and the Corresponding 3, 3'-Diquinazolyl: M. T. BOGERT and H. A. SEIL.

By condensing 6-nitro acetanthranil with hydrazine hydrate, the authors obtained an amino quinazoline and a diquinazolyl. The same diquinazolyl was prepared by condensing the amino quinazoline with another molecule of the anthranil. The properties of these compounds and of several of their derivatives were described.

The Determination of Rosin in Shellac—second paper: A. C. LANGMUIR.

In the author's first paper published in the *Journal of the Soc. Chem. Ind.*, January 16, 1905, the iodine absorption of shellac under certain specified conditions was taken at 18 per cent. and that of rosin at 228 per cent. A large number of tests during the past year on a great variety of shellacs and rosins confirm the values taken at that time. The Hanns solution may be used in place of the Wiji solution, and the same values hold good. The Hubb solution still advocated by Parry should be abandoned, as its use in the determination of rosin has all the inaccuracies established in the case of fat analysis and to a greater extent.

An Electrical Resistance Furnace for the Measurement of Higher Temperatures with the Optical Pyrometer: ALEXANDER LAMPEN.

The substance under investigation is introduced into a small graphite capsule, which is put in the end of a graphite sliding tube, and this is slipped into a fixed horizontal tube heated in a resistance furnace. The pyrometer is sighted on the capsule through the sliding tube. A rough regulation of the temperature is made by varying the current and the fine regulation by moving the capsule to a hotter or cooler zone of the tube. Temperatures up to 2500° C. can be obtained. Besides melting points of several refractory materials, the following temperatures were determined. Reaction point between C. and SiO_2 about 1615° C. Crystallization temperature of C. Si—between 1900° and 2000° C. Decomposition point of C. Si—between 2200° and 2240° C. Reaction point between C. and CaO about 1725° C.

The Measurement of Temperature in the Formation of Carborundum: S. A. TUCKER and ALEXANDER LAMPEN.

The purpose of this investigation was to determine the temperature for the formation of carborundum, and its decomposition into graphite. The furnace was built on the general plan of a large scale carborundum furnace, and was provided with a graphite tube passing transversely through the core and charge. This tube contained a graphite plug which could be pushed to any desired position in the tube. On running the furnace, the plug is raised to a certain temperature depending upon its position in the tube. For different positions this temperature was determined by an optical pyrometer. After taking down the furnace, measurements were made of the layers of carborundum, graphite, siloxicon, and thus gave the temperature at which these changes take place. It was found as an average that the temperature for the formation of carborundum was 1950° C., and for its discomposition in graphite and silicon 2220° C.

F. H. POUGH,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE ORIGIN OF THE SMALL SAND MOUNDS IN THE GULF COAST COUNTRY.

TO THE EDITOR OF SCIENCE: Allow me to express my assent to Professor R. T. Hill's rejection of some theories recently advanced to explain the origin of the small sand mounds in the gulf coast country. No one who is familiar with the appearance of the mounds formed by uprooted trees would for moment regard the sand mounds in the south as having been produced by such a process. Nor do I believe they can be the product of human industry.

Hill's notes on their geographic occurrence are interesting. Allow me to add some data, which I secured relative to these mounds three years ago, near the little village of Olivia in Calhoun County, Texas. I measured the

diameter and the height of fifty-nine mounds, located on an area of about a hundred acres of ground near Keller's Bay, northwest of Olivia post-office. The land has an elevation of some thirty feet above the water in the bay and consists of clay sediments alternating with some sand. The following table shows the variations of diameters and heights of the mounds measured:

MEASUREMENTS OF FIFTY-NINE MOUNDS NEAR OLIVIA, TEXAS.

Diameter of Mounds, in Feet.	Number of Mounds of Different Sizes.	Average Height of Mounds of Different Sizes, in Inches.
Less than 10	13	2.5
From 11 to 20	14	4.5
" 21 " 30	20	7.0
" 31 " 40	6	10.0
" 41 " 50	3	12.0
" 51 " 60	2	13.0
90	1	18.0
Average 23		Average 4.0

About one third of these mounds thus had a diameter of from twenty-one to thirty feet. About forty-six per cent. had a smaller diameter than this and only twenty-one per cent. had a diameter exceeding thirty feet. The extremes were three feet and ninety feet. Their height ranged from two inches to eighteen inches, and it averaged only a little more than four inches. I noticed that their apparent height was quite deceptive. Measurements invariably fell below my first estimates on this dimension.

Observations on two other features were also made: on the presence of sunken pits on the mounds, and on live anthills. The former increased in frequency with the size of the mounds and the latter decreased. One fifth of the mounds exhibited sunken pits. In most cases there was only one pit on each mound, sometimes there were two, and in one instance there were three. The shape of these pits is irregular, and they have a tendency to occur near the center of the mounds. The anthills, on the contrary, often have a peripheral situation. Of the forty-five mounds noted as having anthills three mounds had two and the others had only one each, thus:

CONDITION OF FIFTY-NINE MOUNDS NEAR OLIVIA, TEXAS.

Diameter of Mounds, in Feet.	Number of Pitted Mounds.	Per Cent. of Pitted Mounds to Total of Each Size.	Number of Mounds with Anthills.	Per Cent. of Mounds with Anthills to Total of Each Size.
10 and less	0	0	14	100
11 to 20	1	7	11	79
21 " 30	4	25	15	75
31 " 40	1	17	4	67
41 " 50	3	100	1	33
51 " 60	2	100	0	0
90	1	100	0	0
Averages.	—	20	—	76
Totals.	12	—	45	—

The clay on which these mounds occur is evidently a lagoon sediment. It is red and greenish-blue and too uniform in texture to be a stream alluvium.

I was informed by several parties that under these mounds the sand continues down for some distance below the surface of the surrounding ground, while the rest of the subsoil is clay. It has also been found that when land with such mounds has been inundated for a rice crop, the water sinks so rapidly through the sand under them, that this land can not be used for such purpose, if the mounds are too numerous.

It seems to me that from what is at present known of these mounds the following views may merit consideration, if we wish to apply the method of multiple hypothesis in their study:

1. Differential settling of coarse and fine sediments, as suggested by Hill. The cause of the localization of such action then requires a separate explanation.

2. The anthill hypothesis. Some of the mounds seem too large to be accounted for in this manner, but my own observations rather support it.

3. The wind-drift hypothesis. The persistent circular form is an objection to this hypothesis, as is also the downward continuation of the sand.

4. Vertical brisk seepage of water under hydrostatic pressure through thin clay strata underlain by water-bearing sands, might re-

sult in the formation of irregular chimneys of sand in such clays. This hypothesis appears to require so exceptional conditions as to be almost irreconcilable with the wide distribution of the mounds. J. A. UDDEN.

AUGUSTANA COLLEGE,
ROCK ISLAND, ILL.,
May 15, 1906.

SPECIAL ARTICLES.

RECENT EARTHQUAKES RECORDED AT ALBANY, N. Y.

UNDER the direction of Dr. John M. Clarke, state geologist, a seismograph has been installed at Albany, N. Y., and was placed in operation early in March, this year. The instrument belongs to the Bosch-Omori horizontal-pendulum type. It is mounted on a concrete pier in the basement of Geological Hall. Special care has been taken to isolate the pier, so far as practicable, and to protect the instrument from artificial disturbances. There are two pendulums which record the north-south and east-west components of motion. The elevation above sea level has not been determined, but it is somewhat less than 100 feet.

Up to April 22, three seismic disturbances had been recorded, one on April 10 and two on April 18, the date of the destructive earthquake at San Francisco.

1. April 10, P.M.[1]

	East-West Comp.	North-South Comp.
	h. m. s.	h. m. s.
Beginning,	4 29 15	4 29
Beginning principal part,	4 41	4 41
End principal part,	4 46	4 42 30
End,	5 27	4 58
Maximum amplitude,	35 mm.	25 mm.
Period of maximum waves,	24	17
2. April 18, A.M.		
Beginning,	8 21 30	8 21 30
Beginning principal part,	8 32 30	8 33
End principal part,	8 42	8 42
End,	11 05	9 37
Maximum amplitude,	48 mm.	65 mm.
Period of maximum waves,	20	18
3. April 18, P.M.		
Beginning,	7 48 30	7 48
End,	8	7 57
Maximum amplitude,	0.1 mm.	

[1] Eastern standard time.

The multiplying ratio of the pointers was twelve on April 10 and ten on April 18. The period of both pendulums was about 30 s. The instrument has been in good working order since its installation, though on April 10 the east-west pointer (registering north-south component) showed an abnormal displacement due probably to its being in slightly unstable equilibrium. The displacement was coincident in time with the arrival of the larger waves. Again on April 18 (A.M.) the record made by the same pendulum showed a greater amplitude for the maximum wave than that registered by the north-south pendulum, but this was apparently due to the seismic disturbance itself, as the preceding and subsequent waves on the former record were much smaller.

It is interesting to note that the duration of the preliminary tremors was about the same in the earthquake of April 10 and in the larger one of April 18, which, if the former came from the west, as seems probable, would indicate that the two had a common origin.

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PARAPHYSES IN THE GENUS GLOMERELLA.

ATKINSON was probably the first investigator to obtain a perfect or ascigerous stage from a species of *Glœosporium*. Stoneman, one of his students, continued this line of investigation, and, as a result of her studies, described a new genus which she called *Gnomoniopsis*, containing five species, one of which was considered doubtful. She did not happen to obtain the ascigerous stage from what was then known as *Glœosporium fructigenum* (*Glomerella rufomaculans*), although she grew it in cultures, but Clinton did about four years afterward, and several other investigators have since, among them being Spaulding and von Schrenk, who changed the name of Stoneman's genus from *Gnomoniopsis* to *Glomerella*.

With the exception of Stoneman's doubtful species, there is no evidence that any of these investigators saw anything suggesting paraphyses. On the contrary, Clinton says in his bulletin on the rots of apples, 'There was no